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THE AGE AND ITS CAPACITY

IN the pressing problems of the times we are apt to forget those other problems which we thought equally pressing before facts more stark imposed themselves upon us. One of these was the care for and preservation of Rural England. The more we became conscious of it as a nation, the greater became the threat to its charm. Men became of one mind in seeking escape from the confines of the towns, and as they fulfilled their plans they destroyed the things they sought.

The country bungalow quickly became one of an urban row, and the quest for space and freedom receded once more. The rambler, cyclist and motorist, on their weekly pilgrimage to space, found themselves confined in crowds and queues differing little from their urban counterparts.

The lawmaker has been ready with his palliatives, all of a restrictive nature, and some fruitful of result. But we shall never really solve the problem until men are sufficiently educated to do the appropriate thing of their own free will, without the goad of rule and regulation. That is not a sermon in favour of anarchy but a statement of fact. Bye-laws may create a semblance of decency by making indecency an expensive luxury, but they cannot create decent people until those people become decent by nature.

We cannot sit back, therefore, with satisfaction and peace of mind, directly we have passed laws to prevent history repeating itself, however wise and productive those laws may be. Our chief concern should be to arrive at a state of society under which those laws would become unnecessary.

Laws have to be in precise terms, although much of the hurried legislation under which we suffer falls far short of any such ideal. And precise terms are difficult to apply to a way of life or the desires of the higher instincts. Precision often denies many harmless and some actually desirable things. We come upon such matters more often than anywhere in Town Planning.

It must have occurred to many thinking people that our only prescription for the preservation of a beauty spot is to proscribe building. What a confession of ineptitude in our age this is ! Yet, how can we devise a working alternative ? Under modern Town Planning there would have been no Mont St. Michel, no Corfe Castle, no Pont du Gard, no St. Catherine's Chapel. If someone suggested a noble viaduct to carry the Portsmouth road across the Devil's Punch Bowl at Hindhead, he would be dubbed a vandal. If another proposed a hostel clinging to the Sussex Downs like a French mountain monastery, he also would be howled down.

Is this, then, a reason for relaxing Town and Country Planning and initiating a period of freedom for each to do as he likes ? It would be absurd to suggest such a thing at such a time as this. We have referred to the need for such restrictions as a confession of the ineptitude of our age, and we do so not in despair but to call attention to what we lack, which is a natural instinct for appropriate action and appropriate behaviour. That is really what good development means. And whatever laws we devise and pass, we must regard them not as monuments in perpetuity but as devices to cover the time during which we develop ourselves once more towards the ability for singleness of purpose.

A first step towards this educational process is to imbue society with the conviction that to do things well demands skill in the doing, and that the more complicated they are the more specialised the skill that is needed.

We have already made it impossible for a man to decide for himself that he shall call himself an architect. We should also make it impossible for him to act as an architect unless he is fitted to assume that noble calling. The amount of destruction to the amenities of our countryside and towns which has been perpetrated by the unskilled is appalling. It should be a process not difficult to check.

But even so, skilled men cannot work in a vacuum. They must have the understanding and sympathy of their fellows if they are to give of their best. And there we enter upon a field that seems simple at first glance, but which bristles with difficulties. It is the matter of public education in the meaning of architecture, and, indeed, of all the Arts. How to achieve this has baffled many deep thinkers. It is a process which needs to start almost in the cradle if it is to lead to a real habit of thought, rather than become a fashionable creed.

We thus have to find the teachers, none of whom has enjoyed that sort of education we think desirable. Many of the teaching profession have already acquired habits of thought far wide of the real meaning of Art, and to re-educate a grown man is a task of forbidding magnitude.

There is no doubt that the architect himself must do much more to explain himself to society at large. Many have no aptitude towards such a process, and many who have such an aptitude are too fully occupied to attend to such a task. It may be that among the many students of the future, who will seek to enter the profession in one capacity or another, some may be persuaded to attack the problem from the outset, as a definite career, with the approval and support of the authorities. We feel that there might be a very useful occupation for those who feel a special call for such a career, and that we might make great strides towards a more understanding society by such means as these.

But the ultimate aim must be to clear ourselves of the low ideals, the disregard of æsthetics and the general badness of taste which make the work of the present generation so poor in standard that our only way of preserving a landscape is by proscribing all visible building within its compass.

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The Squatters' Rights.

THE year 1946 will most certainly not be memorable as one of great reconstructional activity, so perhaps one of its chief claims to posterity will lie in the fact that the people, exhausted with their often terrible housing difficulties, decided to take matters into their own hands.

Be assured this move, for better or worse, is no small thing; the logic of it is almost terrifying in its reality. Camps—some empty, disused or falling into decay—have been commandeered by groups of families. No one can doubt that their necessity is dire, for, generally speaking, any house of brick or other permanent construction is preferable to temporary huttings, and it is the measure of their distress that, in the knowledge that these buildings could serve them as temporary accommodation until the housing programme really gets under way, they have organised themselves into a non-violent army with one object, to obtain the best temporary housing possible.

During the last few days the Ministry of Health has issued a singularly lame and maladroit set of excuses for the Government failure to convert the camps for domestic use. They urge the "squatters" to return to their homes. They cannot appreciate, it seems, that the people would not choose to move into huts ments had they better homes to go to. Logically, the people's housing must come before the requirements of German prisoners and Government stores.

The Ministry of Health, however, can to some extent be exonerated from blame, as the Service departments apparently tended to ignore the whole issue; they, and not the Ministry, are really responsible for the present state of affairs. However, the Ministry's report on the situation, and its attitude towards the plight of the people, show precious little constructive thought.

To Sweden!

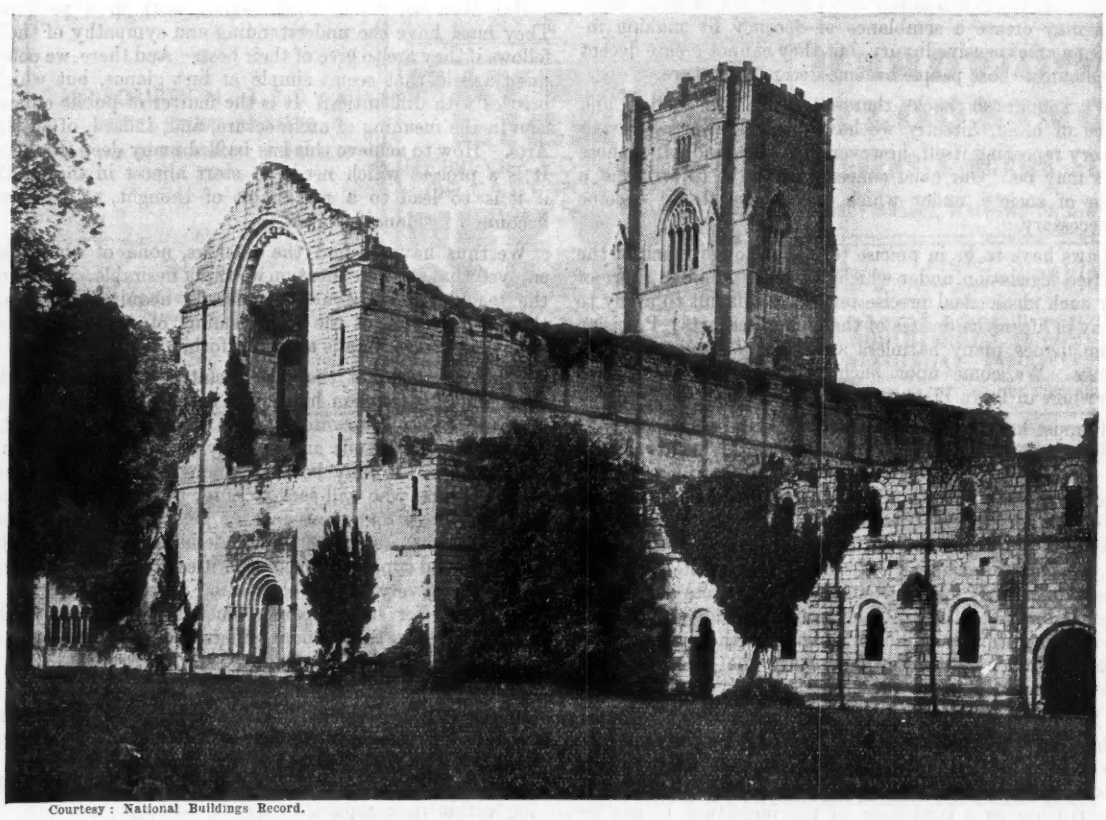
THAT so many architects and others appear either to be in Sweden, or about to go, raises the old point, why is that country so supreme in its attraction for those interested in the art and the science of living?

It is, we feel, that the Swedish character is uncomplicated. That the fact that no war devastation has visited their land assuredly makes their towns doubly attractive to the war-ravaged traveller from these shores. Beyond this, one feels there a tremendous sense of fundamental good in everyday living and things. It is inherent in the Swedish character to design well—the smallest detail is studied—and from this very fact their towns have assumed a wonderful sense of, shall we say, integrity. Can we ever achieve such a standard? Are our ambitions and tastes too large and commerce-ridden to retain the spirit of the individual craftsman? Will necessity make our world crude and ill-fitted for the pursuit of normal happiness? It is a dangerous path, but beauty and balance in the design of living can be achieved if the artist and the craftsman assert themselves to the utmost. Only then will the future be assured.

Building Industry Distribution Inquiry.

THE Committee appointed by the Minister of Works to inquire into the distribution of building materials and components has held its first meeting. The Committee has already invited the submission of written evidence from representative bodies of the builders' merchants, building materials producers and users of building materials and components, and from a number of separate authorities, firms and individuals. The Committee would also be glad to receive written statements from any other organisation or individual concerned with the production, distribution or use of building materials and components, or from any other interested person who feels that he has something of value to offer which would assist the Committee in its inquiry.

The terms of reference of the Committee are as follows :—"To examine the organisation and methods of distribution of building materials and components with particu-



Courtesy : National Buildings Record.

FOUNTAINS ABBEY : The Abbey Church from S.W. (See Note.)

lar reference to cost and efficiency, and to make recommendations."

Communications should be addressed to the Secretary of the Committee, Mr. W. P. D. Skillington, Ministry of Works, Lambeth Bridge House, London, S.E.1.

"Tight Supply."

Is "short supply," the official war-time synonym for "scarce," losing its popularity? According to the Board of Trade, certain metals are "in tight supply or may be in short supply." (Subtle distinction.) Presumably, when they are abundant they will be "in loose supply or may be in long supply." Heaven forfend! Sir Alan Herbert must be on the alert.

Fountains Abbey: Restoration Contemplated.

NEGOTIATIONS are in progress for the sale of Fountains Abbey, Yorkshire, to the Roman Catholic Church. It is understood that it is proposed to restore a part for use as a Benedictine monastery. The abbey, the most important monastic ruin in England, was founded as a Cistercian monastery in 1132. The present owner is Mr. Clare G. Vyner, cousin of the late second Marquess of Ripon, who occupies the adjoining Fountains Hall.

According to a correspondent in *The Times*, "the aim is to form a memorial shrine for English-speaking Roman Catholics who fell during the recent war. The 'Chapel of the Nine Altars' would have altars dedicated to the nine nations concerned, including the United States, where great interest is being taken in the project. It is intended that monks of the Benedictine order should be installed who would pray for the souls of those killed, irrespective of nationality or creed. Monks from Buckfast would, it is hoped, carry out any necessary building, but all architectural work would be subject to the approval of fully qualified independent architects and is at any rate subject to Government permission."

Rebuilding the House of Commons.

THE foundations for the new building to take the place of the old House of Commons, damaged by enemy action, are nearing completion, and the contract for the structural steelwork, comprising 1,200 to 1,300 tons, has been awarded to Redpath Brown and Co., Ltd. The whole of the steelwork will be fabricated at their London works at East Greenwich, and the erection carried out by their own organisation.

The new Chamber will occupy the same site at the old House of Commons and the old building has now been completely dismantled. A certain amount of high tensile steel will be used in the construction of the new building, and the erection of the steel framework will be completed in about nine months' time. It is the hope of the Government that the new Chamber will be completed in time for the present House of Commons to assemble in the new building.

The architect for the rebuilding is Sir Giles Gilbert Scott, O.M., R.A., and Dr. Oscar Faber, O.B.E., D.C.L. (Hon.) D.Sc., is in charge of all civil engineering, heating and ventilating.

L.M.B.A. President and Scottish Rotary.

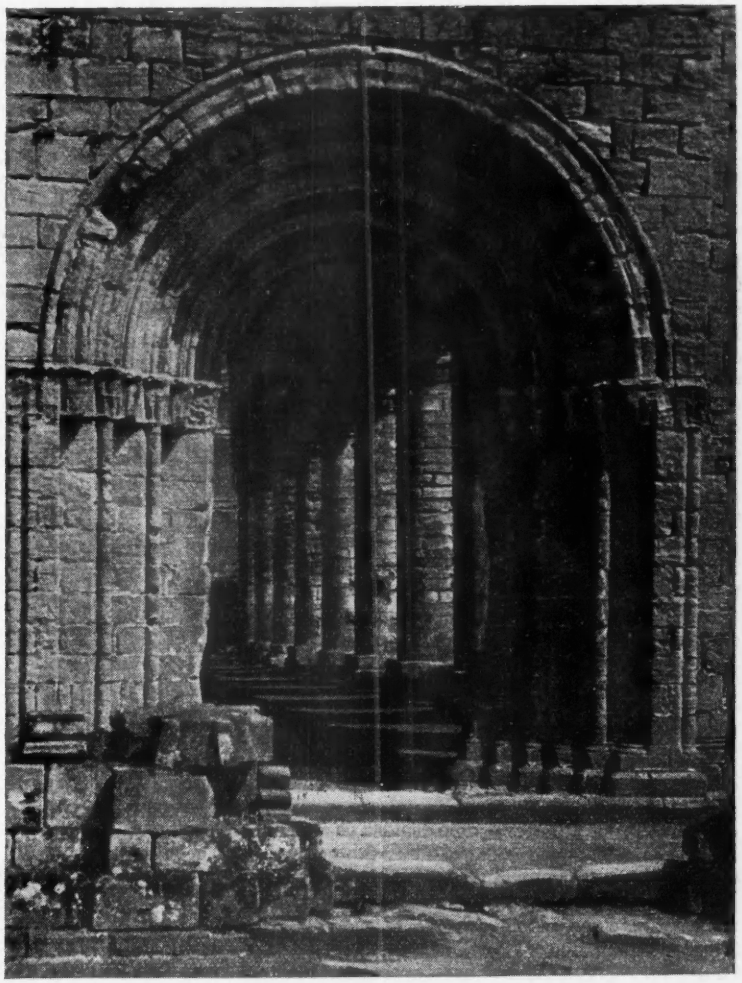
MR. E. W. GARRETT, President of the London Master Builders' Association, has been invited to address the Rotary Clubs of Edinburgh and Glasgow in October.

Professional Announcements.

Under a new scheme recently put into effect by the Design Research Unit, MR. MISHA BLACK, O.B.E., F.S.I.A., takes over general administration and development while retaining his own architectural and industrial design practice and his place on the Unit's design directorate, which works under the chairmanship of Dr. Herbert Read. The detailed administration of the Unit will be in the hands of a business manager, Dorothy Goslett. MR. W. G. V. VAUGHAN, O.B.E., M.S.M.A., has resigned from the position of managing director, but retains his seat on the board. The Unit's address is still 12, Bedford-square, W.C.1 (Museum 7644).

MR. ERIC G. LYNDE, F.I.A.S., quantity surveyor, has taken Messrs. D. F. Dauncey, S. D. Mattock and F. R. Messom, Professional Associates, R.I.C.S., into partnership, and the firm will be practising in future under the style of Messrs. Eric G. Lynde and Partners, at 41, Russell-square, W.C.1 (telephone: Museum 9095).

MESSRS. W. J. MARTIN and J. T. MARTIN have set up in partnership as quantity surveyors in Eastbourne, Sussex, under the title of Martin and Martin. Pending war-damage repairs to their offices at 10, Gildredge-road, Eastbourne, their address is Ailsa-Craig, Mill Gap-road, Eastbourne (telephone: 3119). Trade catalogues would be welcomed.



FOUNTAINS ABBEY: Detail of Entrance to Abbey Church.

PROFESSOR H. O. CORFIATO, S.A.D.G., F.R.I.B.A., who has been appointed to the Chair of Architecture, the University of London, following on the retirement of Professor Richardson.

From *The Builder* of 1846

Saturday, August 22, 1846.

THE STORM OF THE 1ST OF AUGUST.—Frightful as is the amount of damage done by the late storm, in the shape of broken glass and injured works, it must, nevertheless, be regarded as a providential event in a sanitary point of view, for which we should be grateful. The purification of the air effected, and the cleansing of drains and sewers, to say nothing of the highways, were of the utmost importance. One of the minor advantages to London housekeepers is the destruction of large numbers of rats washed out of the sewers by the floods. . . .

WORKS OF ART IN GERMANY AND GREECE

THE IMPACT OF THE WAR

By MARTIN S. BRIGGS, F.R.I.B.A.

In May, 1944, the British Government set up a strong Committee on "The Preservation and Restitution of Works of Art, Archives and other Material in Enemy Hands." In 1945 this Committee issued the first of a series of reports covering Italy south of Bologna. Two more reports,* issued last week, form the subject of the present article; and it is announced that they are to be followed by others on Northern Italy, Malta, and Austria (British Zone). So authoritative a series is invaluable to all serious students of historical architecture, and it is solely with buildings and their decorative accessories that this article is concerned. The two new reports are more fully illustrated than the previous report on Southern Italy, and each contains a really excellent map showing the principal places mentioned in the text. The work has been very thoroughly and intelligently done, and the numerous photographs are admirably reproduced.

North-West Germany.

Those who endured the trying period of the blitz in London will recall a statement made by Mr. Churchill when things were at their worst: that for every ton of bombs dropped upon England we should retaliate tenfold. At the time, that rather suggested "soothing syrup," but our dauntless Prime Minister seldom deluded us with false hopes, and his confident prediction was duly fulfilled, or even surpassed. Some photographs in the report now under review, though not selected to reveal the extent of devastation, indicate the appalling havoc wrought by British and American bombers on the great cities of North-Western Germany. Yet it is comforting to find that so many famous and beautiful buildings have miraculously escaped, either by accident or design. The spirit that inspired Hitler to order "Baedeker Raids" simply does not exist among Englishmen, and evidently our airmen were instructed to avoid bombing certain ancient monuments, for several of them have survived as islands in the midst of a sea of chaotic ruin. The sum-total of damage to buildings here recorded is, however, tremendous; and it may be assumed that it was equalled or approached in many parts of Germany not covered by this report, which is limited to the British zone of occupation in the north-west. The Russian zone includes not only Berlin but many picturesque old towns such as Wismar, Rostock and Neu-Brandenburg, where damage must have been considerable; and Dresden has suffered terrible injury. South of the British zone lie the areas occupied by the French and Americans, including Baden, Würtemburg, Bavaria and the Lower Rhineland. Here are situated some of Germany's most famous cathedrals (*e.g.*, Mainz, Worms, Freiburg and Ulm) and some of her most picturesque towns (*e.g.*, Nuremburg and Rothenburg). Certain of these localities have suffered grievously, others have almost escaped damage, but naturally nothing is said of them in the new report. It is to be hoped that our allies will ultimately publish similar reports for the French, American and—if one dare suggest it—the Russian zones.

The British zone with which I am concerned comprises

The British Zone in Germany.

the administrative districts of North Rhine, Westphalia, Hanover, Hamburg and Schleswig-Holstein. I shall deal with them in that order, not taking all the towns alphabetically as in the report, because the former method seems more appropriate to a descriptive article though the latter is useful for reference. As the "Foreword" emphasises, the incidence of damage varied greatly according to locality. Thus the Rhine towns, the Ruhr, and western Westphalia endured intensive bombing for years; Cleve, Krefeld and Wesel suffered violent ground-fighting; but, in central and eastern Westphalia and in Hanover, damage—serious as it was—tended to be confined to the larger towns while the monuments of Schleswig-Holstein escaped almost inviolate except for the bombing of Lübeck in 1942. Hamburg, of course, was a constant target. Taken as a whole, the destruction of historical buildings was far more severe than that of their fittings, which had been "evacuated" with characteristic German thoroughness during the later stages of the war, though apparently the burning of the Marienkirche at Lübeck in 1942 was unforeseen. The precautions taken to safeguard the architectural accessories in the churches of Hildesheim are mentioned below.

Beginning with the Rhineland, it is common knowledge that most of the great and historic city of Cologne is a heap of ruins. The cathedral itself, standing close to the railway station and an important bridge across the Rhine, has suffered; but, externally, damage to the main fabric is not very apparent and is chiefly confined to portions of the roof and vaulting, and to window-tracery. Among the Romanesque churches for which Cologne is equally famous, St. Andreas and St. Maria in Lyskirchen have been damaged, but not irreparably; St. Kunibert is "an utter ruin"; the Church of the Apostles, St. George, St. Gereon, St. Maria im Kapitol, St. Martin and St. Pantaleon, have all been gutted or very seriously injured, as have the Gothic churches of St. Severin and St. Ursula. The two most attractive old

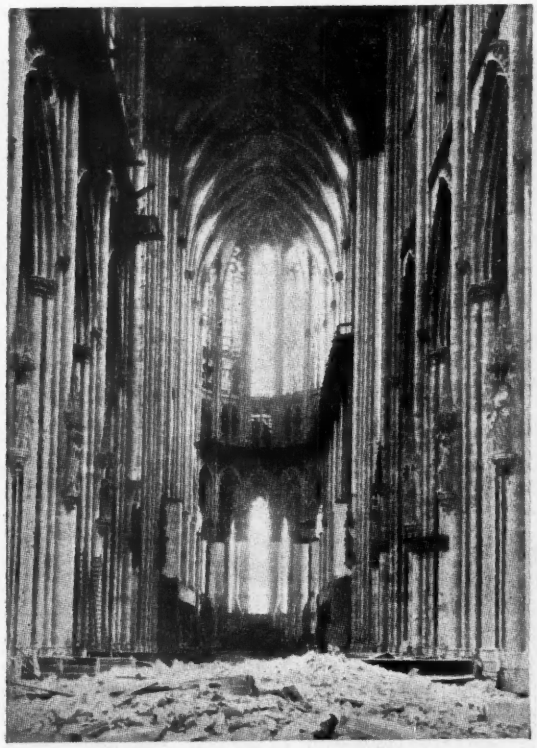
* Works of Art in Germany (British Zone of Occupation): Losses and Survivals in the War; price 2s. 6d. Works of Art in Greece, the Greek Islands and the Dodecanese: Losses and Survivals in the War; price 2s. H.M. Stationery Office.

civic monuments of Cologne are, or were, the late-Gothic Rathaus with its striking Renaissance portico and the adjoining late-Gothic building known as the Gürzenich, used for banquets and other state occasions. The former has been "in part gutted," the latter "quite gutted."

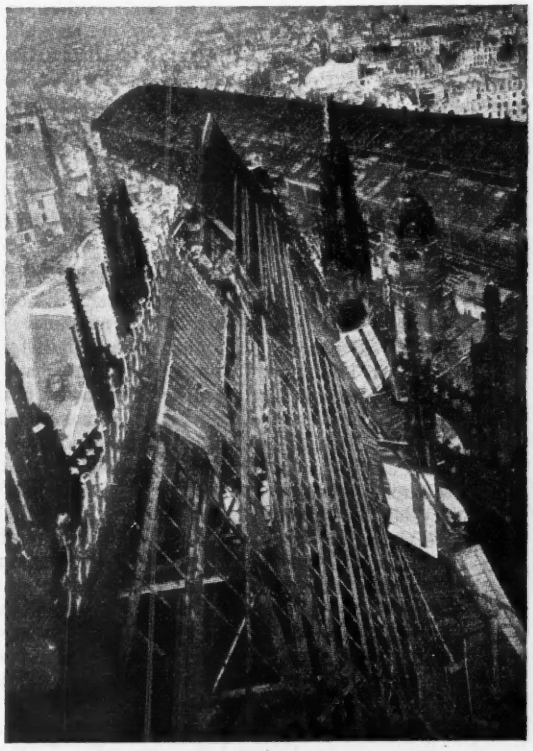
Düsseldorf, which constantly figured in the B.B.C. news not so long ago, suffered less than Cologne, but contains few historical buildings of outstanding importance. The church of St. Lambertus was badly damaged, the 18th-century hunting-lodge known as the Jägerhof was almost destroyed, but the charming Stiftskirche at Gerresheim has survived intact. Neuss, just across the Rhine, has fared badly, but its chief monument—the Gothic church of St. Quirinus—may be repaired. Essen, a huge but unattractive city, was a bombing-target for years. It contained only one noteworthy old building, its cathedral partly Gothic and partly "Ottonian" (early Romanesque): the latter part, though roofless, has been saved; the Gothic portion is ruined and in danger of collapse. Other large towns in this area include the great inland port of Duisburg, containing few relics of the past, and Wuppertal (formerly the twin towns of Elberfeld and Barmen), which had none: both were heavily bombed. Wuppertal resembles the less attractive of the stone-built worsted-spinning towns of the West Riding, with which it has much in common industrially. Gelsenkirchen, just over the border of Westphalia, is akin to our mining towns. It was mentioned more often, perhaps, in our nightly bombing news, than any other place in Germany except Hamm. Gelsenkirchen had no historical buildings, and the few existing in Hamm have been obliterated. Dortmund, also in Westphalia but within the crowded industrial area known as "The Ruhr," is another large mining centre but more attractive than Gelsenkirchen. It contained an old Rathaus, "almost totally destroyed," and three old churches, of which the Petrikirche, the Reinoldikirche and the Probsteikirche have lost their roofs and vaulting and the Marienkirche is not severely damaged apart from the loss of its outer roof.

Returning to the Rhine province, we learn that Cleve, "with its charming Dutch houses, has been as severely damaged as any town in Germany. The great Gothic Stiftskirche has suffered heavily. . . . The Evangelical Saalkirche, in Dutch 17th-century style, is all but destroyed . . . and the Schwanenburg (a Gothic tower) is heavily damaged." Of the neighbouring town of Wesel "little survives in a condition that admits of repair," and the fine Gothic Willibrordikirche, seriously injured, rises from a waste of utter desolation, depicted in a striking air-view. Krefeld, an important manufacturing centre in the same district, has been severely bombed, but contained no buildings of historical note. Xanten, a much smaller place in this frontier area where so much bitter fighting took place as our army entered Germany, was full of history and contained a beautiful cathedral described by Baedeker as "a gem of Gothic architecture" but now reported as "a melancholy ruin."

South of Cologne lies Aachen, or Aix-la-Chapelle, Charlemagne's famous capital. This city was heavily battered, from the air and on the ground. "Of all the historical monuments, only the Cathedral escaped comparatively lightly . . . Its Carolingian polygon is structurally intact." Most of the other churches, Gothic or Baroque, appear to have been gutted or largely destroyed, and the mediæval Rathaus "is in danger of total collapse." The ancient fortifications of the city have also suffered. Jülich, a little town near Aachen where violent fighting took place, is described as "a ruin" and its Rathaus as "a heap of rubble," though some of the other buildings can be repaired. Ten miles south of Cologne the great Schloss of Brühl, "the most important 18th-century building in the Rhine-

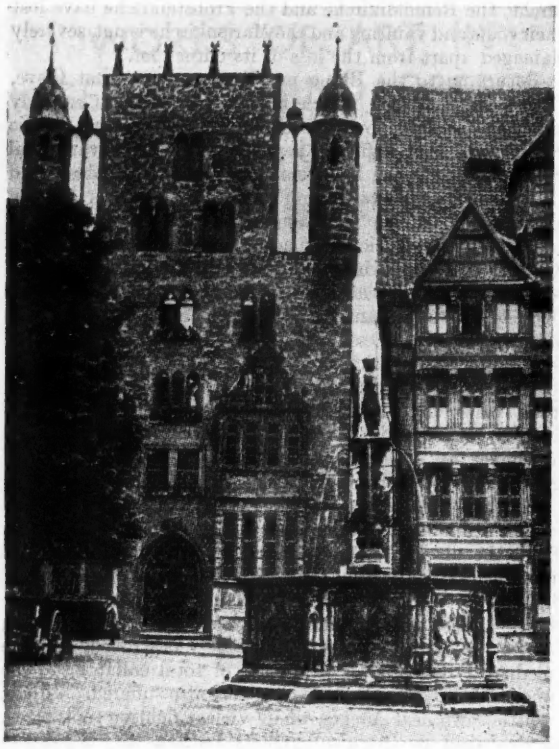


The Interior of the Choir.



The Roof, with Railway Station beyond.

COLOGNE CATHEDRAL (1946)



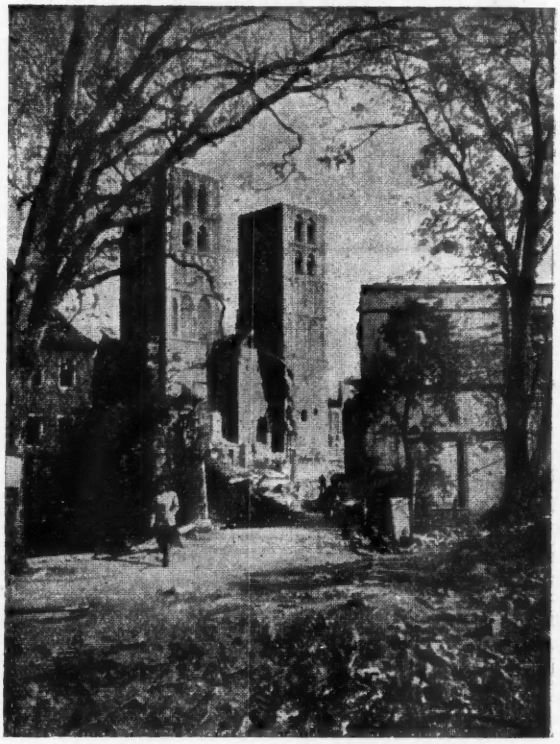
Hildesheim: The Templar's House before the War.

land, has suffered grave but not irreparable damage. . . . The Great Staircase by Balthasar Neumann and the apartments decorated by François Cuvilliés are preserved." At the southern end of the British zone, on the Rhine, lies the charming town of Bonn, famous the world over for its university. "Despite heavy and widespread damage, the city has not been completely spoilt. The Münsterkirche has suffered heavy damage," but repairs are in preparation. "The University, which occupies the 18th-century Electoral Palace, is almost completely destroyed," as is the magnificent Poppelsdorfer Schloss, built in 1715–18 and used by the university as a museum.

The province of Westphalia contained other huge palaces of the same period, very French in character. Its capital city—Münster—possessed two splendid examples both designed by J. K. Schlaun: the huge Schloss built for the prince-bishop in 1767, now "a gutted skeleton"; and the Erbdrostenhof erected ten years earlier, now "a mere shell." Most of the lovely Gothic Rathaus has perished; and the early-Gothic cathedral, as our illustration shows, has suffered terribly, the nave having fallen in. Almost all the churches have been rendered unusable and "the University has lost nearly all its buildings." Of Münster as a whole, the report states that "very widespread destruction has entirely destroyed the whole ancient character of this once fine city." Paderborn, which has been an episcopal see for nearly a thousand years, is now "one of the most completely devastated towns in Westphalia"; but its splendid Romanesque and early Gothic cathedral, although it has lost its roof and the tops of its towers, is not beyond repair. Most of its other churches have suffered severely, and the mediæval Rathaus is destroyed, as are most of its fine old houses. At Soest, the Romanesque cathedral has been sadly mutilated, the Minoritenkirche is "completely ruined," and most of the other churches have suffered, but the lovely late-Gothic Wiesenkirche has escaped without irreparable damage. In the north-east corner of Westphalia, Detmold and Bückeburg have suffered little, but Bielefeld has sustained considerable injury to its streets and especially to its churches. At Minden, where bombing was relatively light, the only buildings seriously damaged are the fine cathedral, a mainly Gothic building with a Romanesque tower, and the Gothic Rathaus, which has been gutted.

In the province of Hanover, the city of Hanover "had a heavy battering and no building of any importance has escaped damage." All the old churches have been grievously injured, several of them beyond any hope of repair. The picturesque old houses in the Altstadt have nearly all gone, together with the late-Gothic Rathaus, Leibnitz's house, and the royal palace. In the outskirts, the famous Schloss Herrenhausen (described in Thackeray's book *The Four Georges*) "has been destroyed, but its important contents were evacuated." Nearly all the damage at Brunswick occurred in a single night-raid in October, 1944, when much of the centre of the town was obliterated. The fine old Gothic Rathaus was "entirely burnt out," and the neighbouring Gewandhaus with its huge stone gable in the early Renaissance style (1591) "was also gutted." Most of the numerous old churches have suffered a similar fate, but the mediæval cathedral has escaped with relatively minor injuries.

Brunswick and Hanover are picturesque cities, but Hildesheim is even more so, and used to be a favourite item in English visitors' itineraries. Those of us who knew it hoped that it might evade attack, but the report dispels all our hopes. "This ancient city is a ruin, and only one of its buildings of any consequence, the Moritzkirche, has survived intact. The whole of its series of old houses has been destroyed, and the ensemble of the Altstädter Markt has vanished for ever. The Gothic Rathaus is burnt out. The Dom has been badly damaged, and the cloisters, with



Munster: The Cathedral (1946).

Photo: T. W. French.

The Monastery of OSIOS LOUKAS in STIRIS, showing damage after German air-bombardment.

their attached chapel, partly destroyed; but the bronze doors and other historic works of art . . . were evacuated and are safe. In the same way, although the Michaeliskirche has been burnt out and badly damaged, its early painted wooden ceiling was dismantled and stored in safety." In contrast to this sad tale of destruction, it is comforting to learn that the neighbouring little town of Goslar, a favourite tourist haunt and a museum of historical architecture, has escaped scot-free as an "open city" and a hospital-centre; so also has Wolfenbüttel with its ducal Schloss, while Göttingen with its famous university, Oldenburg and Lüneburg have sustained little damage, and at Celle and Hameln few historical monuments have suffered. Osnabrück, a great railway centre, was heavily bombed and has lost most of its fine old houses, its Schloss and its Rathaus; its cathedral and other churches have also been seriously damaged. Emden, on the Dutch frontier, has been "utterly wrecked."

As for Hamburg, a great fire in 1842 obliterated nearly all the old buildings, and the only two historic churches remaining have been gutted in the recent war. Finally, the ancient and picturesque city of Lübeck, although heavily bombed in 1942, has preserved many of its fine houses of the Gothic, Renaissance, and Baroque periods, its old Rathaus, and its two striking mediæval gateways; but the magnificent mid-Gothic Marienkirche was "completely gutted; the roof and spires were destroyed." With this "incident" we may conclude an appalling tale of devastation.

Greece

Although the report on Greece is similar in length and format to that on North-West Germany, the total amount of damage to ancient buildings, as opposed to minor or portable works of art, is, fortunately, trifling compared with the terrible catalogue of ruin summarised above. (Students of classical Greek architecture will learn from the earlier report on Southern Italy that no injury whatever was sustained by the Greek temples at Syracuse, Segesta, Girgenti, Paestum and Metapontum.) In Athens itself the Tower of the Winds, the Monument of Lysikrates, and the Arch of Hadrian were entirely untouched; the Erectheum, the temple of Nike Apteros, the Propylæa and the Theseum have only been flecked by bullet-marks; and two direct shell-hits on the Parthenon have produced negligible scars. Elsewhere in Attica, there has been a certain amount of damage at Eleusis, at Eleutherae, and at the temple of Poseidon at Sounion. The walls of the Piræus on the landward side are said to be "in bad condition."

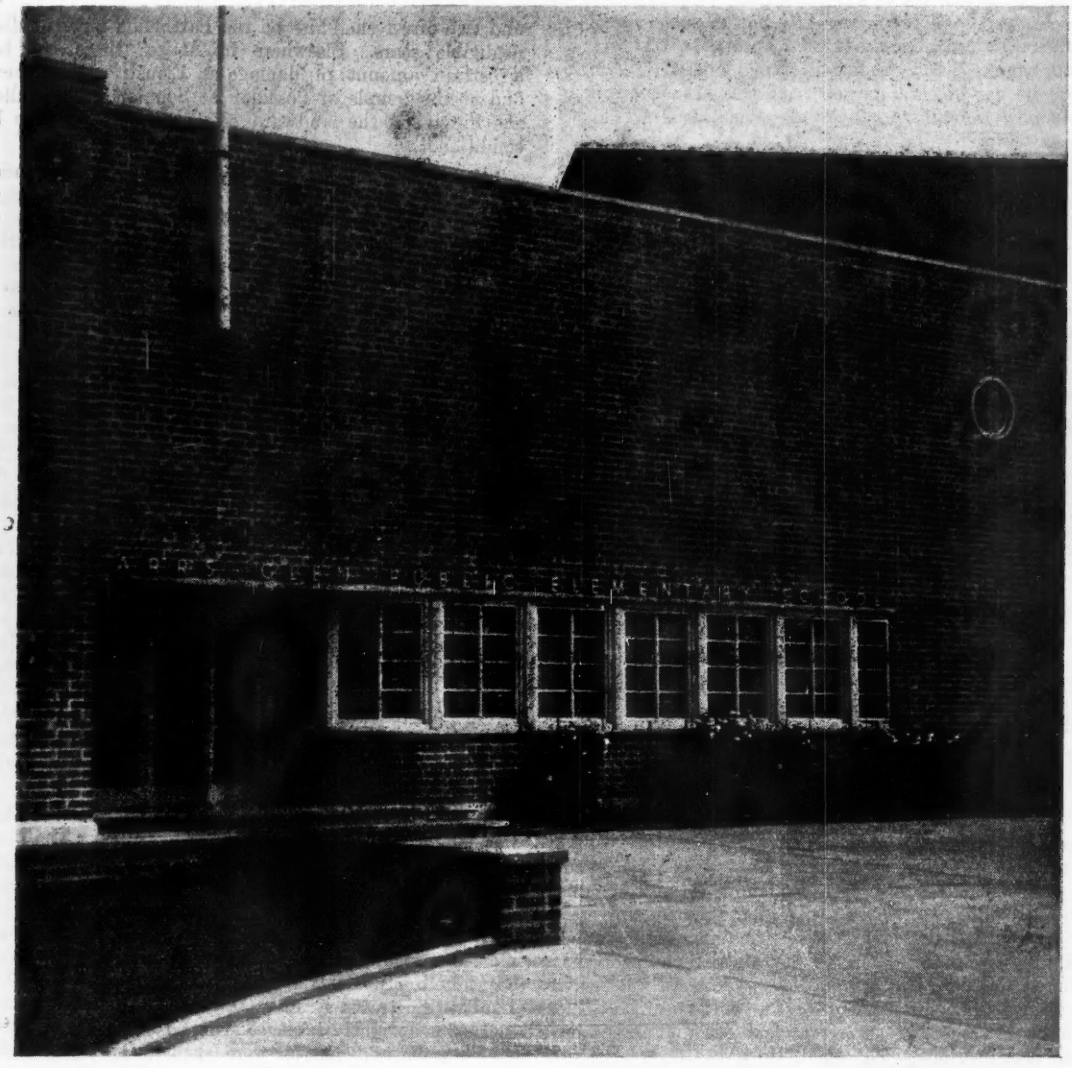
In the Peloponnese, the ancient sites at Asine, Corinth and Tiryns have suffered slight damage through the digging of trenches by the Germans, and at Corinth there was some pillage by Germans and Italians. The important remains at Elis, Epidaurus, Megalopolis, Nemea, Olympia, Perachora, Sikyon, Sparta, Tegea and Vassiliko are all intact; but the celebrated "Lion Gate" at Mycenæ has been slightly chipped, presumably by German rifle-fire, In Central Greece, Euboea, Aetolia, Thessaly and Epirus, no damage to ancient sites is reported. Eastern Macedonia. Thrace, Samothrace and Thasos were occupied by Bulgarians, who are said to have been guilty of "plunder and wanton destruction of monuments," including buildings at Amphipolis, Philippi (where a superb mosaic depicting the fortifications of ancient Rome was destroyed), Samothrace and Thasos. In Crete, minor damage by Germans and Italians to Greek architectural remains is recorded at Amnisos, Gortyn, Isopata and Phaistos. The Minoan building at Palaikastro was wilfully destroyed by an Italian officer who removed it "wall by wall and stone by stone." No structural damage is reported at the famous Minoan palace at Knossos, but the German G.O.C. in Crete seems to have had a glorious orgy of looting until he was transferred to Russia, and to have carried out illicit excavations in his frantic hunt for "souvenirs." He actually sawed in half an antique statue to facilitate its transport to Germany!

Among Byzantine antiquities, three churches in Athens were slightly injured by bullets or shrapnel. The church of Ayios Ioannis Theologos sustained minor damage, and the monastery of Osios Meletios suffered severely when the Germans used it as a target for mortar-practice!

In a long list of Byzantine churches in the Peloponnese, most are recorded as intact, but two or three casualties are noted. In Central Greece, the monastery of Osios Loukas (illustrated here) was bombed by German aircraft in 1943 and slightly damaged; numerous other monasteries in Thessaly and Epirus were shelled, burned or looted by Germans or Italians. The famous group of monasteries on Mount Athos, immortalised in Curzon's book, have sustained no injury; but the Venetian monuments at Heraklion and Canea in Crete fared badly.

The report concludes with a long list of damaged buildings in the Dodecanese islands of Rhodes and Kos, which were ruled by Italy between the two Great Wars. In the old and picturesque city of Rhodes, "many of the mediæval houses and churches were damaged." On p. 55, S. Maria al Castello (formerly the cathedral of the Knights of St. John) is said to have been injured, but on p. 60 to have suffered no damage! The various palaces of the Order here, as at Malta, belonged to different "nations," and are found in the "Street of the Knights." The most attractive of them is the Albergo della Lingua di Francia (1492-1503), one end of which has been destroyed by a bomb. As no other knightly *alberghi* are specifically mentioned here, it is to be hoped that they have escaped injury. The mediæval fortifications have sustained some damage, especially the Gate of St. Paul. At Fileremo, also on the island of Rhodes, the conventual church and the castle were both hit. The ramparts of the Venetian castle on the island of Kos provide the last architectural casualty recorded in this report.

The illustrations accompanying this review are taken (by courtesy of H.M. Stationery Office) from the reports.



Detail of Main Entrance.

CARR'S GLEN P.E. SCHOOL, BELFAST

R. S. WILSHERE, F.R.I.B.A., F.S.I., EDUCATION ARCHITECT

THIS SCHOOL WAS BUILT TO SERVE A DISTRICT THAT WAS being rapidly developed before the outbreak of the war, and replaces an older one which was known as the Oldpark P.E. School. The new school provides accommodation for 800 senior and junior pupils and has 16 classrooms, with additional special rooms fully equipped for housewifery, woodwork, science and art. The plans were originally prepared for junior pupils and the special rooms were added after the plans had been prepared.

To meet the requirements of the Northern Ireland Ministry of Education, all the classrooms are sited to face south, and this determined the layout of the buildings in relation to the site which, lying between two roads, has enabled a very successful result to be achieved. This layout gives a much greater sense of space to the school grounds than is provided by the usual rectangular plan when placed symmetrically on a limited site, in this case two acres in area. It has further reduced to a minimum the obstruction to the extensive view available to the adjoining houses. The site has a fairly steep cross fall, and to overcome this difference in levels of the two main blocks they are connected by sloping covered ways and a feature is made to the infants' classrooms by formation of a raised terrace on to which the classrooms open. Instead of the general practice of grouping the girls' and boys' latrines in separate units, they are grouped in pairs, distributed to serve each block most effectively.

The building is faced with rustic bricks with a limited amount of cast stone dressing, the reinforced concrete structural supports between windows being used as a feature in the general design. The windows extend the full width of the classrooms, and those to the corridors are arranged to slide into the wall supporting them on the principle of the motor-car sash, leaving clear unobstructed openings. Externally, windows are painted cream, all doors being chrome yellow, with grey metalwork. Internally, the colour scheme generally is cream walls with beige dadoes and woodwork, the fixed presses in classrooms having flush panel doors picked out in Ostwald Theory colours, the chrome yellow of the

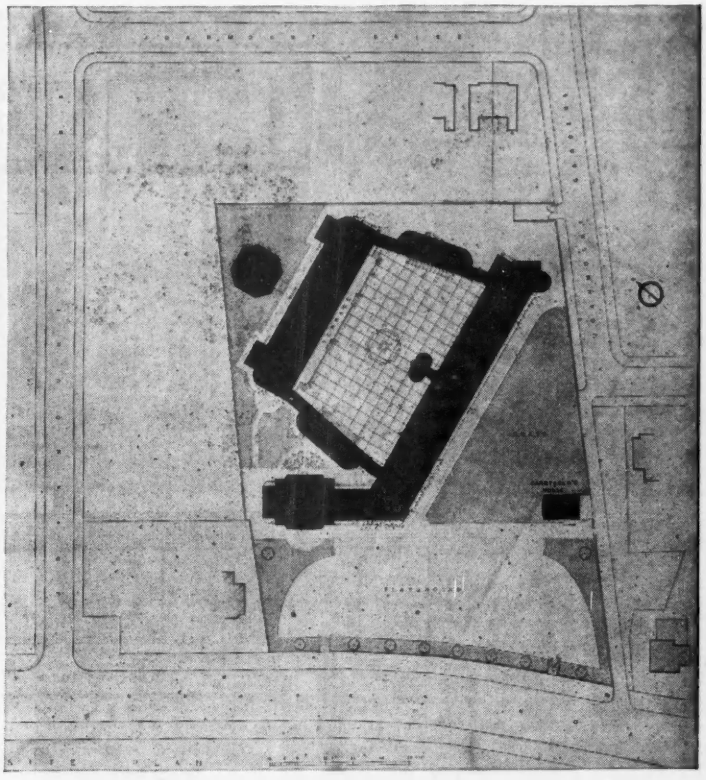
external doors being repeated in the internal colours.

Externally, a feature has been made by the use of a number of metal grilles with characters from Walt Disney's Mickey Mouse films, enamelled in their correct colours. A large concrete paved playground is provided to the main road frontage. The internal courtyard is paved with coloured concrete slabs and serves as a playground for the junior pupils. The remainder of the site is turfed and provided with flower beds. The building, which was completed shortly after the outbreak of the war, cost £26,750, including £1,300 for low-pressure hot-water heating and £420 for electric lighting. The builders were Messrs. Thos. McKee and Sons, Ltd., of Belfast.

Sub-contractors and suppliers were:—

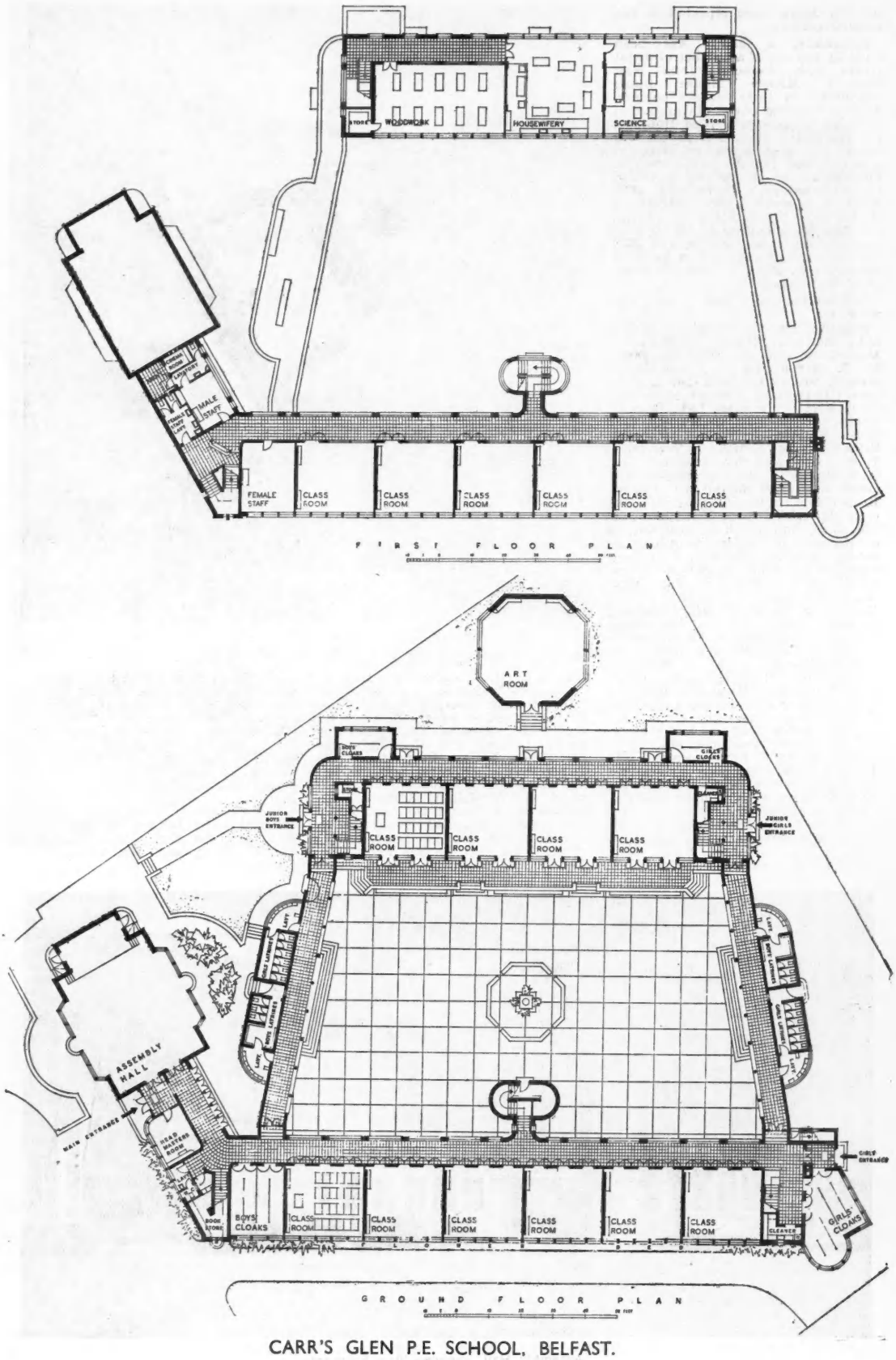
Heating installation, Thos. Crowe, Ltd., Belfast; electric lighting, G. McCartney and Co., Belfast; sand, M. T. Byrne and Co., Coalisland; cement, British Portland Cement Co.; lime (Hydralime), Cement Marketing Co.; plaster, Astroplax, Ltd., Belfast; bricks, *common*—Thos. Murphy and Sons, Belfast, *perforated*—Haypark Brickworks Co., Belfast, *engineering*—T. S. Dixon and Sons, Belfast, *fire-brick*—Sankey's Moler, *glass*—Lens-crete, Ltd., and *facing*—Dungannon Brickworks, Ltd., Dungannon; concrete flags, Workman, Forth and Jardin, Ltd., Belfast; floor tiles, Dennis of Ruabon, N. Wales; Nautilus flue blocks, Nautilus Fire Co., Ltd., London, W.1; tiled skirtings, Durabello, Ltd., Belfast; flat roofing and damp proof course, Vulcanite, Ltd.; metal expansion joints, Imperial Chemical Industries, Ltd., Birmingham; blackboards, "Sundeala," P.I.M. Co., Ltd., Sunbury-on-Thames, and "Masonite Presdwood," Masonite, Ltd.; structural steelwork, Musgrave and Co., Ltd., Belfast; steel sashes and doors, Crittall Manufacturing Co., Ltd.; hopper cheeks, Williams and Watson, Ltd., Liverpool; reinforcement, "Twisteel," Twisteel Reinforcement Co., Ltd., New Malden, Surrey; fencing, gates and grilles, Musgrave and Co., Ltd., Belfast, and Chapman and Co., Belfast; cloakroom fittings, Alfred Brown and Co., Birmingham; R. W. heads, Macfarlane and Co., Ltd., Glasgow; cinema shutters, Kalee, Ltd., London, W.1; pavement lights, J. A. King & Co., Ltd., and Haywards, Ltd., "Glascrete" windows, J. A. King and Co.; lettering, internal, Austin Dale, Brighton, and external, Birmingham Guild, Ltd., Birmingham 16; sanitary goods, Doulton and Co., Ltd.; gas fires, etc., Belfast Corporation Gas Department; hardware, Robt. Patterson and Sons, Ltd., Belfast, and Wellwood and McMillan, Belfast; Ideal boilers and radiators, the ideal Boiler and Radiator Co., Ltd., Hull; piping, Stewarts and Lloyds, Ltd.; fittings ("G.F." Le Bas), Le Bas Tube, Ltd., London, E.C.3; valves, British Steam Specialities; pump, "Criton," Pulsometer Engineering Co.; electric clocks and bells, S. D. Neill, Ltd., Belfast; electric light fittings, "G.E.C.," "Revo," Revo Electric Co., Ltd., Tipton, Staffs, Hailwood and Ackroyd, and Best and Lloyd; paints, Gay and Co., Ltd.; mats, "Nuway," Nuway Manufacturing Co., Ltd., Birmingham.

The quantity surveyors were McCarthy and Lilburn, FF.S.I., Belfast; and the clerks of works, Mr. Walter Finlay and Mr. Thomas C. Smith.

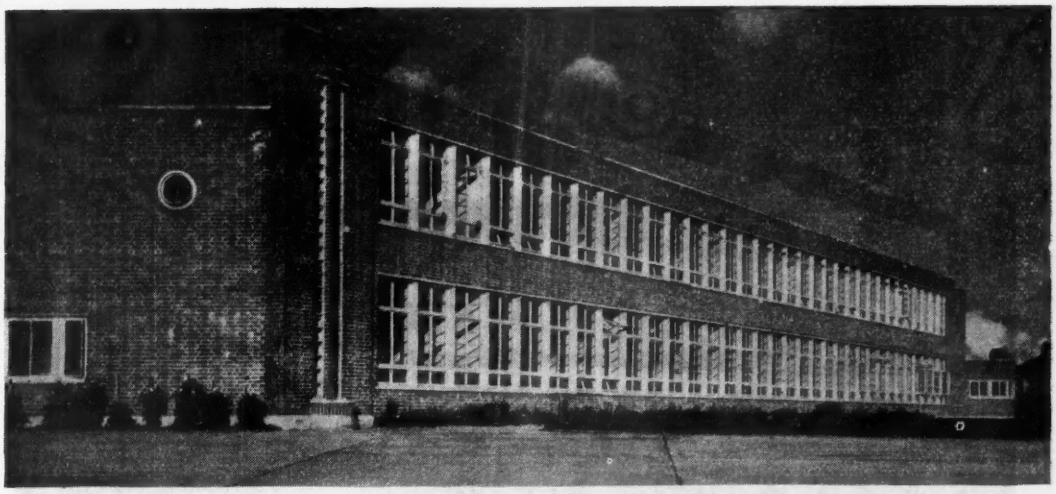


The Site Plan.

Assembly Hall, showing Main Entrance.



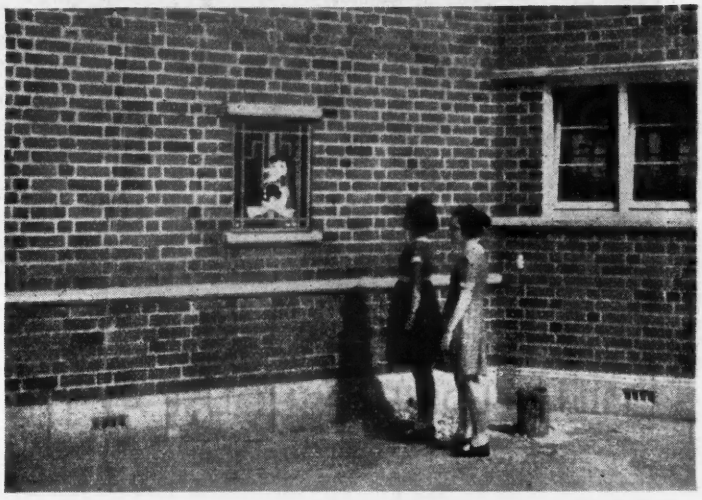
CARR'S GLEN P.E. SCHOOL, BELFAST.



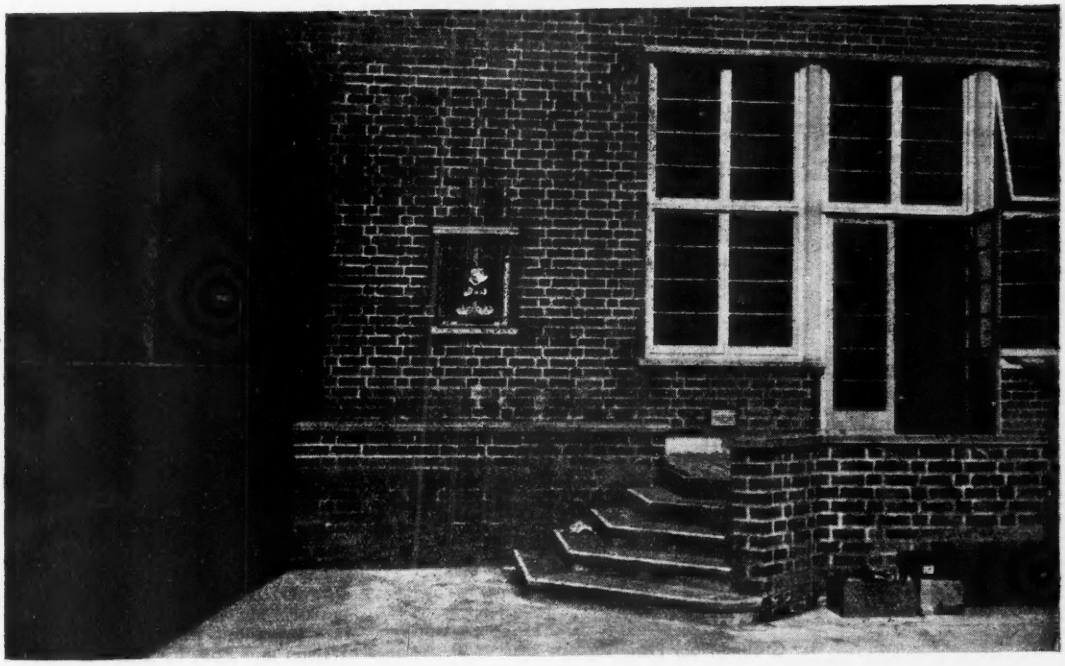
Above; Elevation of South Block.

Right: A decorative metal grille in the Quadrangle, the motif being "Donald Duck."

Below: Steps from Quadrangle to North Classrooms block. The figurine in the metal grille is "Mickey Mouse."



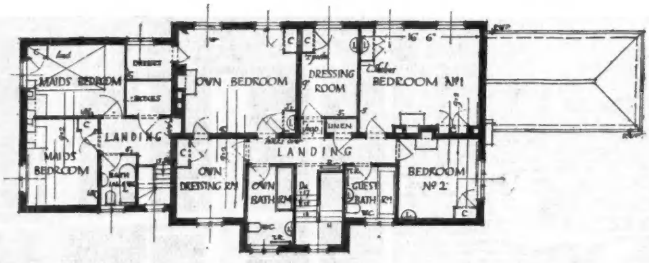
CARR'S GLEN ELEMENTARY SCHOOL, BELFAST



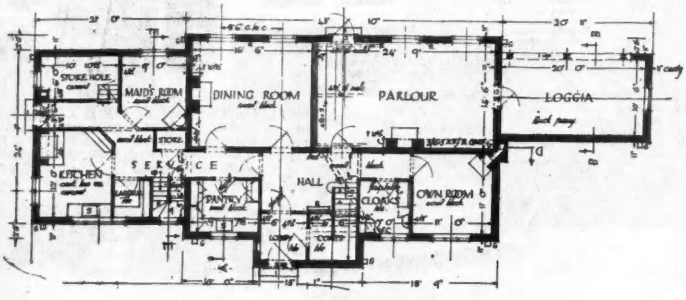
View from the Garden.

"MILLFIELDS": A HOUSE AT THURSTON, SUFFOLK

SIR GUY DAWBER, WILSON & FOX, FF.R.I.B.A., ARCHITECTS



First-Floor Plan.



Ground-Floor Plan.

THIS HOUSE IS BUILT ON A FINE mill site with a gentle slope to the south and a coppice on the north. The walls are in hollow brickwork with a thin "skimming" coat of white cement wash, the roof in multi-coloured sand-faced pantiles, and the windows in wooden casements and frames.

Internal oak-faced doors and cellulosed birch-faced flush doors were by Tibbenham's, of Ipswich. The internal plumbing, sanitation and cold-water supply, and heating and domestic hot-water system, were installed by Dent and Hellyer, and the builder was Mr. Charles Deaves, of Bures, Suffolk.

The architect was the late Sir Guy Dawber, R.A., with his subsequent partner, Mr. A. R. Fox, F.R.I.B.A., now practising as Sir Guy Dawber, Wilson and Fox, FF.R.I.B.A.

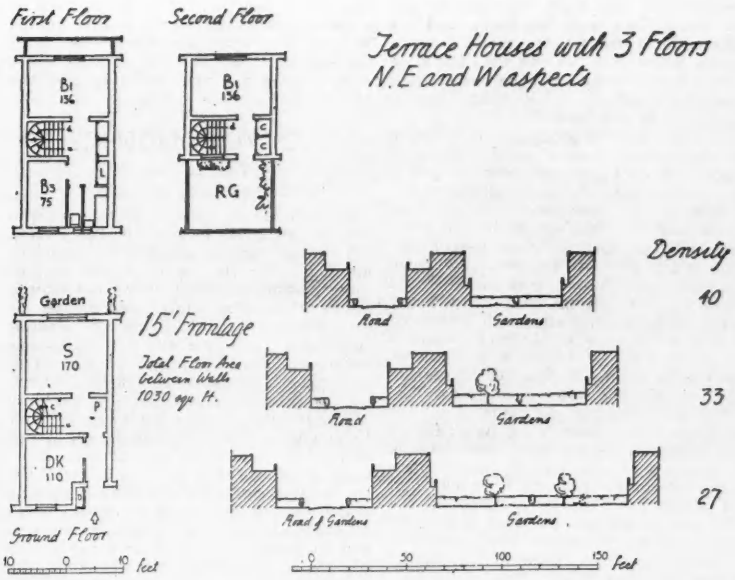
TERRACE HOUSES

THE mind of an architect demands a balance of knowledge and imagination to a degree needed in few other professions and callings, for he deals with an art which governs and is governed by the life and habits of his fellow men. His work is not reserved either for the rich man or the connoisseur, nor can it be hidden from the sight and knowledge of all but those who may choose to enjoy it. Accordingly, the complete architect must be aware not only of the qualities which contribute to his art but of the science without which his work cannot materialise, and the social requirements which he must observe as part of the job for which he is engaged.

It is not surprising, therefore, that the incomplete architect is by no means a rare figure. He may be satisfied with the science of building which aims at secure and weathertight structure in as economical a form as possible, and he may persuade himself that the satisfaction of these by no means unimportant demands will produce an inevitable building form which is bound to give æsthetic satisfaction to a logical mind. Or he may concentrate his skill upon convenience of plan and amenity of aspect, treating the plan as a puzzle to be solved in respect of imposed or self-imposed standards, again persuading himself that the æsthetic factor will follow inevitably and that the bye-laws will impose the requisite building construction.

Again, there are men who choose architecture as the career for an artist; to them the final form and detail of the building within and without, as it satisfies the eye and as it contributes to, or even creates, a visual landscape, will be the major satisfaction and may predominate over all other considerations to such a degree that this kind of architect may find himself taking risks in construction, or using materials with a lavish disregard for cost, or imposing unnecessary inconveniences and shortcomings upon the occupiers of his buildings, thinking these practical handicaps a small price to pay for architectural charm or majesty.

Only if he is the complete architect will he never cease in his quest for impressive form and delightful detail, until he has at the same time produced a sound building with the least structural effort, and one in which it is a delight to live, as an instrument for living as well as a thing of beauty. The mind and conscience that can hold the balance of these qualities are rare and priceless, and exceptional to the degrees of bias towards one or the other which we more commonly meet.

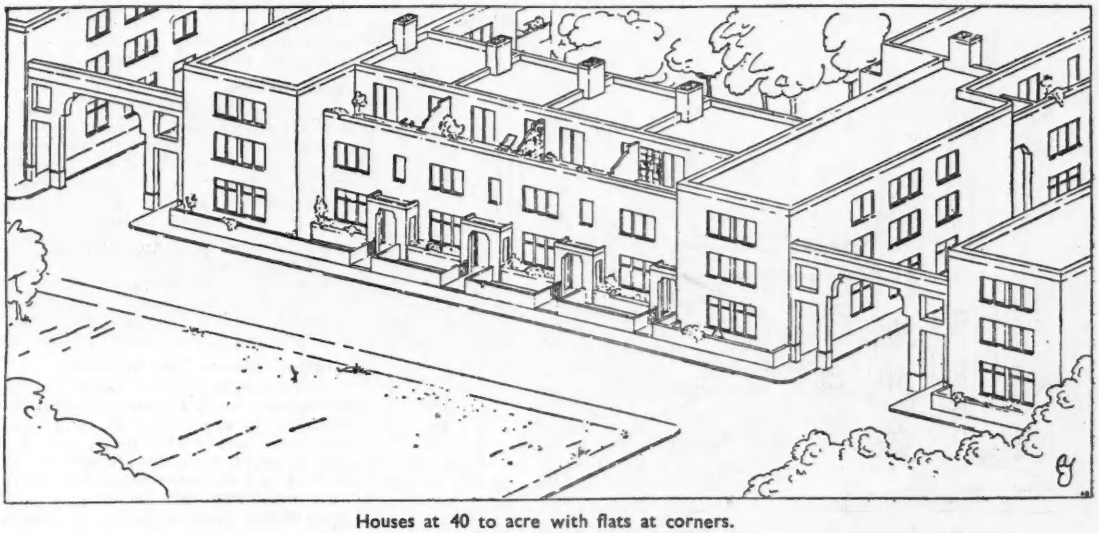


We must confess that of all forms of bias, that which seeks the maximum enjoyment from the visible form of architecture is the most readily to be excused in the architect, provided his conscience is not entirely set aside in the process.

Accordingly, we suspect that many of the ardent pleas which have been put forward for this or that method of housing the population in dense urban areas have arisen as much from an æsthetic bias as from any logical conviction, the architect desiring a certain field for his talents, and proceeding to devise a line of argument that will lead his conscience towards the desired goal, until the wish finally gives birth to the thought. We have seen the skyscraper punctuating broad open spaces in diagrammatic argument, showing how many more people may enjoy how much more sun and air for how many more hours throughout the English sequence of seasons, and we have seen the Garden City plan developed to show what other amenities are opened up if more restraint is imposed upon the standards of density. The arguments thus portrayed are generally passionate and intensely detailed, while the architectural result is so lightly touched upon as to suggest that any such motive is almost indecent. Yet we have the strongest suspicion that the one set of protagonists have an urge to build mighty towers, while the others delight in the grouping of units more nearly attuned to the human scale.

It must be confessed that Mr. Trystan Edwards's treatise on "Modern Terrace Houses,"* clearly written in his well-known literary style, logically argued, and admirably illustrated as it undoubtedly is, has found its chief inspiration in his own liking for a fine residential terrace, and his regret at the passing of this typically English feature from the architecture of modern times. And in saying this, we in no way wish to belittle the quality of his argument for, as we have said, an architectural bias springing from such motives is one of the least

* "Modern Terrace Houses," by A. Trystan Edwards, M.A., F.R.I.B.A., M.T.P.I. Published by John Tiranti, Ltd. Price 6s.



Houses at 40 to acre with flats at corners.

THE ATOMIC BOMBS

reprehensible and most tolerable of all. We share alike both his liking and his regrets, for there are few modern urban centres where men can live with the same dignity and amenity as in the terraces and squares of Georgian and Regency London, St. Leonards and Bath.

No other form of grouping can preserve the architectural lines of street, square, or crescent as does the terrace form, and if we can translate the high ideals of the modern house into this form without appreciable sacrifice of health or convenience, then nothing but a hearty welcome awaits such an outcome. No Town Planning or Bye-law regulation should obstruct it, for we are most of us weary of the compromise estate which attempted to reduce the ideal of three acres and a cow to the density of sixteen to the acre. The closely built semi-detached estate contrives to offer the worst of both worlds.

But Mr. Trystan Edwards does not quite carry conviction with him that all the amenities remain with the terrace. The problem of tight and convenient planning is certainly prejudiced when light and access are entirely confined to the front and back walls, and most of his type plans exhibit some of the inevitable defects of terrace planning, including attenuated rooms lighted from the remote ends and dark halls and passages. These are often minor defects in degree, but they should at least be admitted in any argument which professes to follow a logical course, and when admitted they tend less to prejudice the final argument, which thus stands or falls upon the balance of profit and loss.

The main service which Mr. Trystan Edwards's treatise provides is that it does show that the terrace remains a perfectly practical feature in modern domestic architecture, and that it is not, as so many social theorists seem to assume, an insanitary relic of industrial Victorianism. The crimes of that age were of motive rather than of form, and it still has something to teach us about dignity of aspect. If he has over-reached in his enthusiasm, there is no fear of his oversetting the balance of architectural thought, for there are many enthusiasts among others who think along different lines. It is for us to find a way of welding to our social plans the best which these enthusiasms can inspire, including the fine blocks of flats which can punctuate the dullness of a low urban landscape, the smaller groups of individual dwellings which can recall the human scale, and the terraced street which can bring precise form into the urban scene.

CORRESPONDENCE

A Visit to Iceland.

To the Editor of *The Builder*.

Sir,—A member of this Association who has just returned from a visit to Iceland reports an amazing situation in regard to housing. The shortage is acute—not, of course, owing to enemy action but mainly owing to the exceedingly rapid increase in the population. In the country more farmhouses are needed, or extensions to existing ones. There are no towns of any real size except Reykjavik, the capital, which, with a population of 45,000—it was only 23,000 in 1928—is growing at the rate of 1,000 a year. Concrete bungalows, all cut to a pattern, are spreading out, but all the work attached, such as it is, is restricted by the Municipality to Icelandic architects under the supervision of an official town-planner. As the average family seems to run to four or more children before the parents have turned 30, four rooms, the prevailing ration, seems inadequate.

Our member " takes his hat off " to the hot-water system by which many natural geysers are harnessed to the domestic water-supply. You turn on your bath, and get it hot from a geyser perhaps 12 miles away. The scheme, which cost £1,500,000 four years ago, is reckoned to pay for itself in another six, but prices of everything are fantastic, and so are wages—inflation gone mad. When boys in factories, whose job is to fetch the " elevenses " and not get in the way of the workers, are paid 40 shillings a day, it is not surprising that a dwelling which in England would fetch £2,000 is scrambled for at £8,000.

Our member, who did not notice a single brick building, heard of what may or may not be mere superstition—namely, that brick does not stand up to earth tremors, alleged to be recurrent. As he did not come across anybody who had experienced anything of the kind, he fancies the real truth is that brick has never come within the scope of traditional Icelandic architecture and that artisans and labourers earning princely money could not be induced to give up their jobs to learn a new trade; consequently, even if Iceland had free bricks, she would have nobody to lay them.

Finally, our member was introduced to an interesting book, in appearance not unlike our English telephone book, which is on public sale and which contains the names of every adult in Iceland and against the name of each the amount of Government taxes and municipal rates, etc., which he pays. As the rate of assessment is, of course, public knowledge, anybody can see at a glance what anybody else's income is. Our member noticed that an architect of not exactly world-wide repute had paid £3,000 in a twelvemonth, and was vaguely thinking of setting up practice in Iceland himself until he reflected that bed, breakfast and bath at his hotel were costing him £2 a night, and that a haircut was 8s. 6d.

G. B. J. Athoe, Secretary,
The Incorporated Association of Architects and Surveyors.
75, Eaton-place, Westminster.

Prefabrication.

To the Editor of *The Builder*.

Sir,—Many V.I.P.s (very important persons) seem to be suffering to-day from prefabrication of the brain. This is a serious complaint, and the only cure is a hammer and chisel! This ossification of the upper storey has produced a stiff-necked generation. They can hardly see the wood for trees, and their lack of vision is leading them sorely astray. Prefabrication can only be accepted as a temporary measure, and must in time give way to more permanent buildings built with traditional local materials, otherwise many beautiful districts will be ruined.

It is to be hoped that the Government and all local authorities will bear this in mind. In due course all these prefabrications must come down and be replaced by permanent structures. This is not only essential but imperative.

" Judex."

" The Gentle Art of Teaching ": A Correction.

We regret that in a small number of copies of our last issue a typographical error occurred in Mr. N. Martin-Kaye's letter on the above subject. In the penultimate sentence the word "crammers" should have read " examiners."

Streets of Houses at 55 to the acre, leading to major open space.

The R.I.B.A. Library.

It has been found necessary to postpone the reopening of the R.I.B.A. Library until September 16. Until then only urgent inquiries can be dealt with. Current periodicals will remain available.

Appointments.

Mr. Stuart Bentley, F.R.I.B.A., A.M.T.P.I., has been appointed by Dunlop as their Deputy Architect. During the war he served in the Royal Engineers, including four years in India, where he was Staff Major R.E. with the Chief Engineer of Factories, Calcutta.

Mr. Harold S. Gardiner, A.R.I.B.A., former member of Portsmouth City Engineer's staff and later of the City Architect's Department, has been appointed Assistant Borough Architect of Twickenham.

Liverpool Deputy City Architect.

In connection with the appointment of a Deputy City Architect and Director of Housing, Liverpool, to which reference was made in our issue for August 2, we are informed that Mr. Hubert Bennett, F.R.I.B.A., who was selected for the post, has withdrawn his application. The appointment will probably be readvertised.

THE ATOMIC BOMBS

THEIR EFFECTS AT HIROSHIMA AND NAGASAKI

JUST over a year ago, on August 6, 1945, an American aeroplane, flying at 30,000 ft., dropped a single atomic bomb over the Japanese mercantile city of Hiroshima. The bomb exploded over the centre of the city. Three days later another aeroplane, flying at the same height, dropped a second atomic bomb over the factory area of the industrial city of Nagasaki. From the effects of these attacks it was evident that the destructive potential of bombing from the air had assumed a character and scale beyond anything previously experienced by man.

In November of the same year a British mission, comprising scientists, engineers and medical men visited Japan, and what they saw and learned three months after the bombing is summarised in a report* recently published.

The report opens with brief general descriptions of the two Japanese cities before and after the respective attacks, and goes on to deal in some detail with the blast effects, the damage to commercial and industrial buildings, houses and to public services. It is from this latter section of the report that we take the following extracts :—

Mass Distortion.—It is usual for a bomb to damage only part of a large building, which may then collapse further under the action of gravity. The blast wave from the atomic bomb, however, was so large that it engulfed whole buildings, pushing them askew. The effect, which occurred with all types of buildings, resembles damage done by wind, and operates somewhat in the same way.

Infrequency of Blast Suction.—After the blast pressure has fallen from its peak back to zero, there always follows a period of suction (unrelated to the wind suction just mentioned). Although this suction is weaker than the original pressure, it lasts several times as long, and therefore normally does much damage to objects which had no time to fail under the usually brief initial pressure. Pressures from the atomic bomb, however, lasted long enough to give windows, doors, walls, and even chimneys and telegraph poles time to fail. As a result, effects which could be ascribed to blast suction were unusually scarce, although a few were observed in Hiroshima.

Downward Thrust.—Because the explosion was high in the air, much of the damage was due to downward pressure. Most characteristic was the "dishing" of the flat roof slabs of reinforced concrete buildings, some of which assumed a saucer shape. For the same reason, telegraph and other poles remained upright immediately below the explosion, but were overturned or tilted at greater distances from the centre of damage. Trees below the explosion remained upright, but had their branches torn downward.

Screening from blast by large features, and similar effects, were not unusual; for example, almost the whole of the smaller valley in Nagasaki was screened by the intervening mountain ridge. The reflection of blast, which adds considerably to its force, was unusually marked, but important only in special cases, among them some bridges. Finally, there may be remarked the absence of the carriage of any heavy debris over large distances. Small debris such as tiles and battens appeared to have been carried considerable distances, and was found on tall buildings. But larger pieces of debris were always found close to their point of origin, and where massive slabs such as bridge decking had been shifted, the movement, although on occasion critical, was small.

Damage to Commercial and Industrial Buildings.

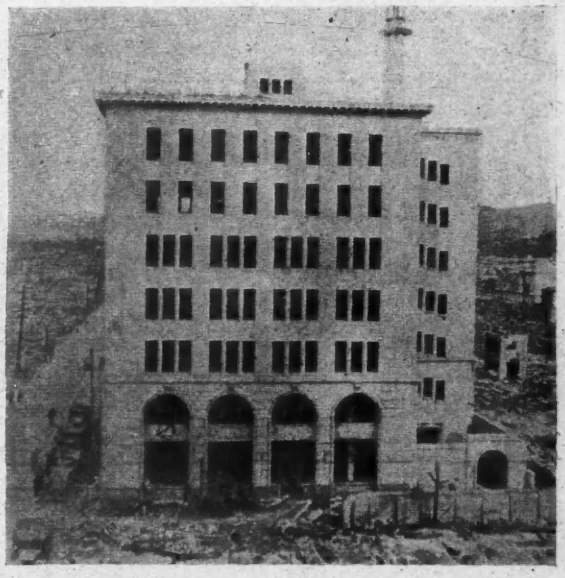
There were great areas of destruction in which, rising here and there like islands, there remained reinforced concrete buildings showing few signs of external damage. There were, in fact, many reinforced concrete buildings in Hiroshima and a number in Nagasaki. They varied from exceptionally strong office blocks designed to be proof against earthquake, to lightly constructed industrial buildings. Between these extremes were some schools and office buildings of more or less normal design such as is usual in Great Britain. In comparison with other forms of construction these buildings resisted the blast

GENERAL VIEW OF HIROSHIMA. The atom bomb exploded over the arrow. A detail of the tall building in the background is shown below. [The illustrations accompanying this article are reproduced by courtesy of H.M. Stationery Office from "The Effects of the Atomic Bombs at Hiroshima and Nagasaki."]

* "The Effects of the Atomic Bombs at Hiroshima and Nagasaki." Report of the British Mission to Japan. H.M. Stationery Office. Price 1s. net.

Above: Reinforced concrete building with timber roof 500 yds. from the centre of damage. A typical case of "Mass Distortion."

Right: A reinforced concrete building 300 yds. from the centre of damage at Hiroshima. It sustained no serious structural damage apart from a deflected roof panel and the deflection of some internal walls.



well. Owing to the height of the explosion, the behaviour of buildings near the centre of damage was greatly influenced by that of their roofs.

For example, a building of normal construction collapsed at 200 yds. from the centre of damage because the flat roof was forced in. The Nagasaki school, which suffered mass distortion at 500 yds. from the centre of damage, while it had special weaknesses, may also be regarded as of roughly normal design. At 700 yds. from the centre of damage in Nagasaki, another school of normal design suffered some structural damage, but did not collapse, and one wing continued in use. A school and an office block, each at ¾ mile from the centre of damage, remained structurally sound, although some internal walls were damaged. In summary, reinforced concrete buildings of normal construction were usually safe from partial collapse beyond 600 yds. from the centre of damage, and from structural damage beyond ½ mile.

Reinforced concrete buildings of very heavy construction in Hiroshima, even when within 200 yds of the centre of damage, remained structurally undamaged. Flat roof slabs 6 in. or 7 in. thick were often dished, but a roof thickness of 10 in. appeared to be sufficient to resist permanent deflection. In one particular building, although less massive than the strongest Hiroshima buildings, its designs incorporated features which made it unusully resistant to side pressure. As a result it remained structurally undamaged, although only 500 yds. from the centre of the damage.

These observations make it plain that reinforced concrete framed buildings can resist a bomb of the same power detonated at these heights, without employing fantastic thicknesses of concrete. The main requirements are a frame designed to withstand heavy side forces from any direction, and a flat reinforced concrete roof perhaps 50 per cent. thicker than would be normal practice. The reinforcement of external concrete walls should also be tied into the supporting frame. It is believed that similar requirements would suffice for steel-framed multi-storey buildings, of which Nagasaki contained the only example. These requirements ignore fire and casualty risks.

Light single-storey concrete buildings, such as are employed for factories and warehouses, failed at about a mile from the centre of damage in both cities. Of the industrial buildings seen, those most characteristic of western practice were the steel-framed single-storey factory sheds. Useful examples were confined to Nagasaki, where they were plentiful throughout the Urakami Valley, both north and south of the centre of damage. They were usually of the type found in large engineering works, with travelling cranes and a covering of thin corrugated iron or asbestos cement sheeting. The bulk of the damage to these buildings was by blast. In Nagasaki fire had contributed to the damage in only about 10 per cent. of cases of damage. In Hiroshima the few small steel-framed sheds found had been damaged further by fire, but this had probably originated in the wooden houses by which they were there surrounded.

The most striking feature of damage was the mass distortion, in the direction away from the explosion, of the entire framework of these buildings. This distortion occurred at distances up to more than ¾ mile from the centre of damage. Its amount naturally decreased with the distance from the explosion. Distortion appeared to be less severe in sheds which had been covered with a material which had itself shattered under blast, such as asbestos cement, than in sheds which had been covered with a pliable material such as corrugated iron, which had transmitted the pressure. (Roof and wall coverings of both types were destroyed to distances of 2 miles and more from the centre of damage.) Beyond the range of mass distortion, steel framed sheds suffered damage to the structural framework at distances up to roughly 1¼ miles from the centre of damage. Like other buildings, sheds suffered more severely when they had a long wall facing the blast, or if they lacked stiffness or bracing.

Of the machines housed in these sheds, only 5 per cent. had suffered serious damage from the atomic bomb. This low figure is to be ascribed to the absence of fire, so that damage was caused only by the movement of parts of the structure which crushed or overturned adjacent machinery.

Nearly two-thirds of all machines in the Urakami Valley had been housed in smaller workshops and sheds of timber. These shops were burnt down almost without exception to a distance in excess of 1¼ miles from the centre of damage. As a result, 50 per cent. of the machines housed in these shops were destroyed or irreparably damaged.

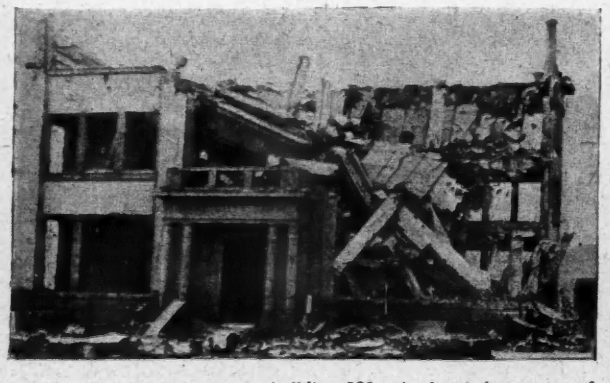
Little information could be obtained on machines housed in reinforced concrete sheds with thin concrete roofs, a type of factory construction more common in Europe than in Japan. Such evidence as was found suggests that approximately 75 per cent. of the machines in such sheds would have suffered damage from the heavy debris formed by the collapsing roof.

Timber-framed single-storey buildings, which are common as workshops and warehouses both in Hiroshima and Nagasaki, behaved badly, being excessively vulnerable both to fire and to blast. For example, the absence of internal stiffening, and the great weight of the roof trusses and tiles, made them subject to collapse from mass distortion at distances of 2 miles and more from the centre of damage.

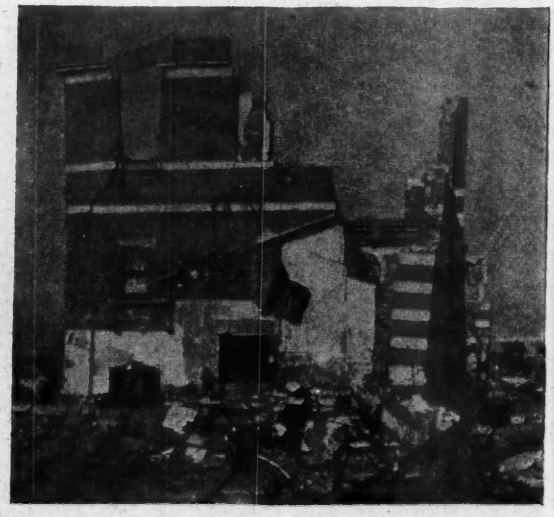
Damage to Houses.

The bulk of the damage in both cities, naturally, was to Japanese houses. These houses are constructed on a frame of 4 in. or 6 in. square timbers. The roofs are not trussed in the orthodox manner and are a source of weakness, particularly since their covering of pantiles bedded in mud on ½-in. boarding is disproportionately heavy. The walls are of bamboo covered with 3 in. of mud, which is sometimes protected by ¼-in. boarding; but much of the wall space is occupied by paper-covered screens. Complete collapse of these buildings from blast extended to 1¼ miles from the centre of damage in Hiroshima, and to an average of 1½ miles in Nagasaki. Fire completed the destruction almost to the same distance, except in one congested area of Nagasaki, where it exceeded it. Beyond the region of complete collapse damage decreased rapidly, the further zone in which houses had been damaged beyond repair being little more than ¼ mile wide. Minor damage extended to large distances, 3 miles or more from the centre of damage.

The major interest outside Japan is the behaviour of unframed brick buildings with load-bearing walls, which make up the bulk of European housing. These buildings are rare in Japan, and those which were found differed in important respects from British housing. The mission had therefore to draw its conclusions from isolated examples. One such building, although somewhat stronger than British houses,



Above: Reinforced concrete building 200 yds. from the centre of damage. The downward blast sheared the roof slab from the columns.



Right: A brick building at Hiroshima with load-bearing walls, of "strong construction and comparable with British standards," half-a-mile from the centre of damage.

had collapsed at 700 yds. from the centre of damage. Interpreting such examples in the light of its European experience, the mission estimated that a bomb of the same power, exploding at the approximate height of those in Hiroshima and Nagasaki,

(1) would cause the collapse of normal British houses to a distance of 1,000 yds. from the centre of damage; (2) would damage them beyond repair to a distance of 1 mile; (3) would render them uninhabitable without extensive repair, particularly to the roof timbers, to a distance of 1½ miles; (4) and would render them uninhabitable until first-aid repairs had been carried out to a distance of 2 to 2½ miles from the centre of damage.

Unframed masonry construction with load-bearing walls of greater thickness is also widely employed throughout Europe for public buildings and blocks of flats. Such buildings are subject to damage of equal severity, at smaller but considerable distances, as in the case of the monumental Roman Catholic Cathedral of Nagasaki, 600 yds. from the centre of damage. Here the damage was completed by fire and other causes, but effectively the building had already been destroyed by blast.

Air-raid Shelters.

The provision of air-raid shelters throughout Japan was much below European standards. Those along the verges of the wider streets in Hiroshima were comparatively well constructed: they were semi-sunk, about 20 ft. long, had wooden frames, and 1 ft. 6 in. to 2 ft. of earth cover. Exploding so high above them, the bomb damaged none of these shelters.

In Nagasaki there were no communal shelters except small caves dug in the hillsides. Here most householders had made their own backyard shelters, usually slit trenches or bolt holes covered with a foot or so of earth carried on rough poles and bamboos. These crude shelters nevertheless had considerable mass and flexibility, qualities which are valuable in giving protection from blast. Most of these shelters had their roofs forced in immediately below the explosion; but the proportion so damaged had fallen to 50 per cent. at 300 yds. from the centre of damage, and to zero at about ½ mile.

These observations show that the standard British shelters would have performed well against a bomb of the same power exploded at such a height. Anderson shelters, properly erected and covered, would have given protection. Brick or concrete surface shelters with adequate reinforcement would have remained safe from collapse. The Morrison shelter is designed only to protect its occupants from the debris load of a house, and this it would have done. Deep shelters such as the refuge provided by the London Underground would have given complete protection.

Damage to Public Services.

Many public services are subject to the consideration which has been implied in the discussion of shelters: that bombs exploded at such heights have no effect below ground. For example, gas and water pipes were, in general, undamaged except where they were carried over rivers on bridges which were displaced. Sewers were undamaged in Hiroshima; they did not exist in Nagasaki. However, in both cities the gas supply was destroyed by severe damage to the gasholders up to 1½ miles from the centre of damage. The producing plant was not seriously damaged at this distance. In both cities, the water pumping station was beyond the range of damage, but that at Hiroshima was out of action for some weeks for lack of electric power.

Overhead electricity, tramway, telephone and telegraph cables and their supports were severely damaged to a distance of ½ mile to 1 mile. In addition, the electricity supply was affected by damage to sub-stations, resulting in debris damage to the switchboards and switchgear; such damage was serious, for example, in the main transformer station in Nagasaki, 1 mile from the centre of damage.

There were 49 bridges within 2 miles of the centre of damage in Hiroshima. Most of these were multiple girder bridges in steel or reinforced concrete, and many had one or more suspended spans; their overall length was usually between 200 ft. and 500 ft. Only one wooden bridge, and one steel bridge in bad repair, were destroyed by the blast; and nine wooden bridges were burnt down in the subsequent fires. The remaining bridges were usable, although some of them had suffered small displacement in the direction away from the explosion, having perhaps been lifted by blast reflected from the river bed.

The 35 bridges within 2 miles of the centre of damage in Nagasaki were all small and relatively light. As a result, all bridges within ½ mile of the centre of damage suffered some damage or displacement, most severe in the least massive bridges, but in only four cases did the damage require repair (in two cases, extensive repair) before the bridge could be used. This excellent behaviour in both cities is associated with the fact that bridges, almost alone among the structures which have been discussed, are designed for vertical loads such as resulted from the high burst of the bombs.

The Problem of Fire.

Fire damage was extensive in both cities, and was not confined to wooden Japanese houses, but raged fiercely in many concrete buildings, in some machine shops, and in other buildings not normally subject to fire. The mission therefore attached importance to the determination of the causes of fire, particularly in industrial, commercial and public buildings, in order to assess the risk of fire in similar conditions in western cities. The aim was to determine the relative importance of two possible direct causes of fire—heat radiation, and convection by heated air; and two indirect causes—damaged appliances, and the spread of fire from adjacent buildings.

The evidence presented leaves little doubt that heat radiation is a cause of fires in unscreened buildings, probably up to distances of 1 mile from the centre of damage. The mission was most impressed by the accumulation of indirect evidence from the many reinforced concrete buildings, the basements, the stairs, or some floors of which had been screened and contained no fire, when floors of the same buildings with windows exposed to the flash were gutted by fire. A number of reinforced concrete buildings in Hiroshima with shuttered windows escaped fire, apparently because the heat radiation, travelling at the speed of light, had arrived and died away before the blast, travelling only at a few thousand feet per second, blew out the shutters to expose the interior. The dense surrounding fires did not spread to these buildings.

No evidence could be found of direct fires caused by convected heat alone, that is, by heat transmitted by the air. It is difficult to think how this cause could have been isolated, or that it can be important in the presence of such intense radiated heat. Indirect causes undoubtedly produced many fires.

In summary, both direct and indirect fires must be regarded as active dangers from atomic bombs. Indeed, whether radiated heat is or is not an important cause of fire, the high temperatures produced by it plainly create conditions exceptionally favourable to the emergence and continuance of serious fires, however caused. For example, the debris of demolished Japanese houses beyond the fire zone which was examined in Hiroshima would rarely have supported fire at ordinary temperatures. Yet it must have been debris in this state which burnt there for days, presumably as a result of the bomb's initial drying and scorching.

Radioactive Effects.

The gamma rays are capable of penetrating considerable thicknesses of building and other material. They thereby pose new problems of protection, the scope of which is not yet fully understood, and is best illustrated by examples.

An unusually strong three-storey reinforced concrete building at Hiroshima, less than 250 yds. from the centre of the damage, contained 23 people whose fate can be traced. The building remained structurally undamaged, and none of these people was killed immediately; nearly all had some lesser injuries from debris and fire, but were able to walk to hospital for treatment. Subsequently, between the sixth and seventeenth day after the explosion, 21 of these people died, probably all from the effects of gamma rays. The two survivors were in the telephone room on the ground floor, where they were shielded by all the floors and possibly by adjacent buildings.

In a five-storey reinforced concrete building 700 yds. from the centre of damage, gamma rays caused many deaths on the fourth and fifth floors and a few on the third, but killed no one below this who was screened by all the higher floors.

A partly underground concrete shelter less than ½ mile from the centre of damage had no gamma ray casualties, or indeed any but minor debris injuries.

At distances approaching 1 mile from the centre of damage, less massive buildings began to protect from gamma rays. For example, in the City Hall of Hiroshima, at this distance, there were no deaths from gamma rays and at most six mild cases of radiation sickness.

Only tentative conclusions can yet be drawn from this and similar information.

The Report Soberly Concludes.

The overall picture is sombre. Even ignoring changes in attack and in the development of the bomb, the damage figures given are very serious. And these figures are a measure only of the blast effect of the bomb. With them must be kept in mind the grave problem of fire, direct and indirect, which the bomb has created. Both are overshadowed by the scale of casualties produced by the bomb, which make the mere disposal of the dead a major problem.

Reinforced Concrete Information.

With the purpose of collating information concerning the uses of reinforced concrete, its design and construction, the third edition of "The Reinforced Concrete Review" has recently been published. It contains, among other items, notes on Codes of Practice, a survey of recent literature, and a short list of official publications. Copies, price 1s. 6d., are obtainable from the Reinforced Concrete Association, 94-98, Petty France, S.W.1.

DESIGN IN INDUSTRY

EFFECT ON EXPORT TRADE

THE importance of design in industry in the building up of the country's export trade is discussed by Sir Charles Tennyson, C.M.G., Chairman of the Central Institute of Art and Design, in an article appearing in the current issue of *The Board of Trade Journal*.

Few important subjects, writes Sir Charles, give rise to so much confused thinking and loose talking as Industrial Design. There are two main reasons for this—the very wide range of activity covered by the term and the widely different points of view of those who discuss it.

Sir Charles goes on to trace Britain's lag behind other industrial nations in pre-war years, giving as the reason the failure of industrialists and buyers (wholesale and retail) to realise that design is a highly specialised function. The remedy—to concede to the designer the status in industry which the importance of his work deserves.

The writer continues: Here we have to combat the argument that the artist is often ignorant of technical and commercial requirements, which may make his design impracticable from the point of view of production and selling. The blame for this is often laid by industrialists on the teachers in art schools, who; it is said, are not sufficiently practical. To the extent that this is true, the fault lies largely with industry, which has failed to give the schools the external help which they require to enable them to relate their work closely to industrial needs. Industrialists are also apt to forget that no school or university can turn out its students so highly trained in any subject that they can become fully useful to industry without further training. Then it is said that the young artist is not willing to adapt himself to the routine and atmosphere of an industrial design department. Where this is true, it is not always wholly the fault of the artist, but is traceable, in part at least, to the cause already mentioned—the unwillingness of the industrialist to recognise the status of the designer.

Of course, the artist, whose whole function depends on a highly developed sensibility and the faculty of creative concentration, needs rather different treatment to a routine draughtsman or office machine operator, and not all artists make as great an effort as they might to adjust themselves to reasonable and necessary conditions. There are concessions to be made by both sides.

So far as the artists are concerned they have during recent years taken one all-important step to support their claim to improved status and consideration—they have begun to organise themselves. They have formed in the Central Institute of Art and Design a Federation of the considerable number of societies representing professional artists, designers and craftsmen, and the Society of Industrial Artists, which is affiliated to and supported by the C.I.A.D., is building up its position as the representative organisation of industrial designers and is working hard to establish a system of qualifications for such designers similar to that which the architectural associations have established for architects. The C.I.A.D. has also done much valuable work, in co-operation with the Industrial Art Committee of the Federation of British Industries, to bring artists and industrialists together.

There is also a very definite movement on the part of industry. The years immediately preceding the war saw a definite awakening of interest in the question of design and a definite improvement of standards in many directions. This interest has increased rapidly since the outbreak of the war.

What is needed is that industrialists should, as soon as possible, set about establishing design arrangements suitable to their particular conditions. Large companies which already have design studios should consider whether they cannot increase the creative ability of these by importing and training new talent and establishing relations on a part-time or consultative basis with free-lance artists. Firms in industries producing consumer products from metals, plastics, rubber, leather, and so on, which have hitherto given little thought to design, should set about the establishment of design departments of a scale and type suitable to their conditions. Small firms, which cannot afford to maintain their own design departments, should get into touch with suitable design consultants, who will assist them on a part-time basis.

The design factor should be regarded as a subject for specialised study, not less important than the scientific, and it should be approached on that basis. This is, of course, of particular importance where new materials are in question, or where known materials are being converted to new uses.

Publications on Copper.

We are informed that the publications, "Copper Through the Ages," "Sheet Copper Work for Building," "The Use of Copper for Domestic Water Services," "Copper Pipe-line Services in Building," and "The Resistance of Copper to Soil Corrosion" have been reprinted and will be supplied free of charge by the Copper Development Association, Kendals Hall, Radlett, Herts., to anyone who has not already had copies and who gives evidence of genuine interest. Any such individual, department or firm wishing to receive future publications as they become available should notify the Association accordingly.

SOCIETIES & INSTITUTIONS

TOWN PLANNING INSTITUTE

Summer School.

Over 400 are expected to attend the Town Planning Institute Summer School to be held at Durham University from September 1-8.

The School will this year regain some of its pre-war cosmopolitan atmosphere, for, in addition to the usual large body of English consultants, planning officers and local authority representatives, visitors are coming from the United States, France, Belgium, Sweden, Poland, Czechoslovakia and Holland.

A new system of study is being tried this year. On six consecutive days six different subjects will be discussed. A morning lecture will be followed by discussion in about a dozen separate groups after lunch, the Chairman of each group reporting back to a full session of the school. In addition, the members will divide into about twenty separate groups in the evenings to study different subjects in detail under expert leaders. Thus the 400 members may hold as many as 100 meetings and classes during the week.

The School will be opened on Sunday, September 1, by the Rt. Hon. Lewis Silkin, M.P., Minister of Town and Country Planning, and Honorary Member of the T.P.I., after addresses of welcome by local dignitaries.

The main subjects discussed during the week will be: (1) The Planning of Historical Cities and Derelict Areas as exemplified in Durham (Thomas Sharp, M.A., L.R.I.B.A., P.P.T.P.I., F.I.L.A.); (2) New Towns (Gordon Stephenson, B.Arch., F.R.I.B.A., Officer, Ministry of Town and Country Planning); (3) Reconstruction (Thomas E. North, F.R.I.B.A.); (4) Planning for Rural Communities (Professor A. W. Ashby); (5) Outline Plans (E. H. Doubleday, M.T.P.I., M.Inst.M.&Cy.E.); (6) The place of the Trading Estate in Planning (Lt.-Col. Methven). The Chairman at all sessions will be Mr. G. L. Pepler, C.B., P.P.T.P.I., Hon.A.R.I.B.A., F.S.I.

Arrangements have been made for tours of the Team Valley Trading Estate and the Roman Wall.

THE INSTITUTE OF QUANTITY SURVEYORS

The fifth annual general meeting of the Incorporated Institute of Quantity Surveyors was held at the Alliance Hall, Palmer-street, Westminster, S.W.1.

Mr. A. C. Remnant, F.I.Q.S., F.F.A.S., president 1941-6, was re-elected president for the ensuing year. Messrs. H. Fulford, F.I.Q.S., J. L. Jackson, F.I.Q.S., P.A.S.I., A.I.A.S., F. Biscoe Taylor, F.I.Q.S., F.F.A.S., and H. A. L. Tozer, F.I.Q.S., were elected vice-presidents. Messrs. W. Clark, F.I.Q.S., A.V.I., L.I.O.B., B. Foster, A.I.Q.S., and E. T. Leach, F.I.Q.S., were elected to fill vacancies on the Executive Council.

The following members have been elected by the branches as representatives in Council for the ensuing year: F. Horsfall, A.I.Q.S. (London); J. Saxon, F.I.Q.S. (Midland); F. Illidge, F.I.Q.S. (North West); H. V. Mace, F.I.Q.S., A.I.O.B., A.F.S. (Eng.), F.V.I. (West of England); S. O. Phillips, F.I.Q.S. (Yorkshire); H. G. Blasby, F.I.Q.S. (East Anglia); J. T. Martin, F.I.Q.S. (Notts, Derby and Lincoln); G. Laing, F.I.Q.S. (North of England).

The President, in his address, said that the appeal for donations to the headquarters fund had received and was receiving generous support. Suitable accommodation was being sought in London.

INQUIRY BUREAU

We are glad to give questions and answers, but cannot accept responsibility for contributed replies, especially on legal matters.

We do not undertake to reply to inquiries concerning proprietary materials. —ED.

Paint Blisters on Walls.

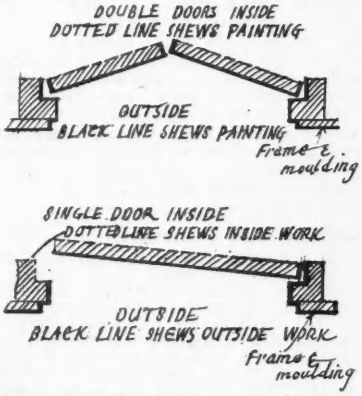
Q.—The paintwork on the interior and exterior walls of a ground-floor flat has developed blisters. I cannot say exactly when the walls were first painted, and it is quite probable that they were originally papered, but I should say the painting was done about 20 years ago. The block in which this flat is situated received a certain amount of damage by bombing, but there is no apparent damage to the brickwork. The blisters are just powder, without any jelly-like substance in them, and I am at a loss to explain their cause.—T. W. B.

A.—The cause of the powdering can be due to the action of acid in the bricks and, more probably, to the material which went to make the coarse stuff under the finished lime plaster. Forty or fifty years ago people seemed to think that any material would make mortar for plastering. I suggest that a match-box full of the powder be sent with an explanatory note to the Building Research Station, Garston, Watford. In order to remedy the matter it would seem necessary to remove all the plaster to the brickwork, remove any defective brick and make good with cement and sand. Then render the wall with one coat of four and one cement and sand respectively and finish in Parian plaster for painting.—G. W. H.

Inside and Outside of Doors.

Q.—How do you differentiate between the inside and outside of single and double doors for painting, i.e., the area covered when one is painting either the inside or outside of a door? Also, can you tell me what tools are required for a painter's personal kit?—R. H.

A.—This question can only be answered with the aid of the accompanying sketch. You will note the frame edges and door rebates are the important points. The whole point, of course, rests on your probably using two colours, i.e., one outside in the hall and the other in the room. The same applies to the double doors, internal and external.

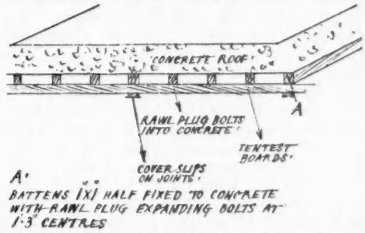


The only personal kit a painter is expected to carry is a stopping knife, hacking knife and hammer (for glazing), a screwdriver (to take off door furniture and finger plates), a pair of pincers (to remove nails, etc.), and a stripping knife (for wallpaper). Dusting brushes and paint brushes are supplied by the builder, decorator or painting contractor, and wear and tear comes under plant account.—G. W. H.

Condensation from Concrete Roof.

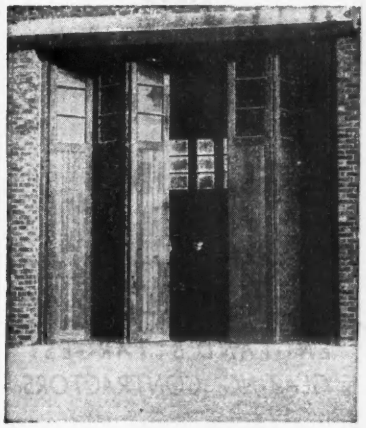
Q.—I have completed a brick-walled room, to which I have had to put a reinforced concrete roof, as I have been unable to obtain wood joists for the normal type of roofing. During cold weather the ferro-concrete roof is not a satisfactory heat insulator, and condensation occurs on the ceiling, from which it drips into the room. I feel it ought to be possible to obtain some heat-insulating plaster which could be applied to the ceiling with a trowel, and then floated over with ordinary plaster, to give a normal smooth finish. I should mention that my concrete roof is also the ceiling of the room.—C. H. K.

A.—I think it should be possible to put an insulating board on the shuttering you have erected for the reinforced concrete roof. I did the whole of a building in the city of London by this method. My advice is to plug the concrete and fix at 2-foot centres an expanding rawlplug (the iron variety); sufficient of the bolt should project so that a wooden batten of 1 in. × 1½ in. can be fixed by bolting up. These battens should


CONCRETE ROOF
RAWL PLUG BOLTS INTO CONCRETE
TENTEST BOARDS
COVER SLIPS ON JOINTS
A
A'
BATTENS (X) HALF FIXED TO CONCRETE WITH RAWL PLUG EXPANDING BOLTS AT 1-3' CENTRES

be at one foot three inch centres. Upon these battens fix a fibre board with special nails; cover the joints with wood slips 1 in. × ⅝ in., nailed into the battens. This can be decorated if required, but I should prefer not to decorate. With reference to plastering the walls, I think the best cure for condensation is to finish in ordinary lime plastering.—G. W. H.

KING SLIDING DOOR GEAR



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FORTHCOMING FAIRS AND EXHIBITIONS

IN recent weeks we have received several inquiries concerning Fairs and Exhibitions likely to be of interest to the industry generally. Below we give a selection of forthcoming events of this nature as listed in *The Board of Trade Journal* for August 10:—

United Kingdom.

"BRITAIN CAN MAKE IT" EXHIBITION.—Organised by the Council of Industrial Design, Tilbury House, Petty France, London, S.W.1, will open on September 24 next at the Victoria and Albert Museum, South Kensington, and will display designs in all the main ranges of consumers' goods, i.e., clothing, office and household furnishing equipment, etc. Further information may be obtained from the organisers at the above address. (Tel. Whitehall 6322.)

BRITISH INDUSTRIES FAIR, MAY, 1947.—London (Olympia and Earls Court). Organised by the Export Promotion Department, Board of Trade, 35, Old Queen-st., London, S.W.1. Engineering and Hardware Section, Castle Bromwich, Birmingham. Organised by the Birmingham Chamber of Commerce (under the auspices of the Export Promotion Department, Board of Trade), 95, New-st., Birmingham, 2. Forms of application for space and full details will be issued as soon as they are available.

PUBLIC LIGHTING APPARATUS AND EQUIPMENT EXHIBITION.—September 10-12, 1946. Central Hall, Westminster, London, S.W.1. Apply to the Municipal Agency, Ltd., 68, Victoria-st., Westminster, S.W.1.

WELSH INDUSTRIES FAIR, CARDIFF.—September 23-28, 1946. Drill Hall, Cardiff. Apply to the Secretary, 17, Windsor-place, Cardiff.

"THE COUNTRY COMES TO TOWN" INDUSTRIAL EXHIBITION, GLASGOW.—October 16-26, 1946, Kelvin Hall, Glasgow. Apply Secretary, Scottish Exhibitions, Ltd., Kelvin Hall, Glasgow, C.3.

SCIENTIFIC AND TECHNICAL EXHIBITION.—November 15-27, 1946. Kelvin Hall, Glasgow. Apply to the Honorary Director, 19, Ladysmith-avenue, Sheffield 7.

ENGINEERING AND MARINE EXHIBITION, LONDON.—August 28 to September 13, 1947, at Olympia, London. Apply to the British Engineers' Association, 32, Victoria-st., London, S.W.1. (Tel.: Abbey 2141.)

Overseas.

INTERNATIONAL FAIR OF FLANDERS, GHENT, BELGIUM.—September 6-21, 1946. Apply to Messrs. S. R. Tippett and Co., Ltd., 110, Cannon-st., London, E.C.4.

27TH SWISS NATIONAL FAIR, LAUSANNE.—September 7-22, 1946. Apply to la Direction du Comptoir Suisse, Place de la Riponne 5, Lausanne, Switzerland.

ROYAL NETHERLANDS INDUSTRIES FAIR, UTRECHT.—September 10-19, 1946. Apply to Koninklijke Nederlandsche Jaarbeurs, Utrecht, Holland.

INTERNATIONAL COMMERCIAL FAIR, MARSEILLES.—September 14-30, 1946. Apply to Comité de Direction, 36, Cannebiere, Marseilles, France.

PRAGUE INTERNATIONAL FAIR.—September 15-22, 1946. Apply to the Secretary, The Czechoslovak Economic Association, 64, Great Cumberland-place, London, W.1. (Tel.: Ambassador 1801.)

INTERNATIONAL BUILDING AND RECONSTRUCTION EXHIBITION, TURIN.—September 16-20, 1946. Apply to the Secretary, Via Cavour 8, Turin, Italy.

ROYAL ADELAIDE EXHIBITION.—March 21 to May 17, 1947. Wayville, South Australia, at Centennial Hall and Grounds, Wayville. Apply to South Australian Chamber of Manufactures, Inc., Pirie-st., Adelaide, Australia.

INTERNATIONAL EXHIBITION OF DECORATIVE AND INDUSTRIAL ARTS AND MODERN ARCHITECTURE, MILAN.—April to July 15, 1947, at the Arts Palace, Milan. Apply to the Palazzo dell'Arte al Parco, Milan, Italy.

INTERNATIONAL COMMERCIAL FAIR, BRUSSELS.—May 12-29, 1947. Apply to the Brussels International Fair, 200, rue Marie Christine, Brussels.

SUPPLIES OF RAW MATERIALS

A BRIEF SURVEY

A BRIEF survey of the supply of raw materials used in the building industry is included in a feature appearing in *The Board of Trade Journal*. We take the following extracts :—

Timber.

The loss of considerable quantities of softwoods as a direct result of the recent strike in British Columbia has accentuated a shortage that was already acute. This, added to the restriction of timber exports caused by the coal famine in Scandinavian countries, means that timber available for use in this country over the remainder of 1946 will barely permit consumption at present levels and, indeed, many users may have to face a reduction in their allocations, since a high proportion of the available supplies must continue to be set aside for the housing programme. Timber shipments from Germany have begun and should increase substantially over the coming months, and there are also supplies in prospect from Russia, though not on a large scale. Resumption of hardwood exports from Burma and the Far East is not yet in sight.

Paper and Board.

It is hoped to obtain increased supplies of newsprint from abroad. It had been hoped that the raw material supplies for other paper and board would have improved sufficiently to increase home production to the highest levels permitted by labour availability, but this has not proved possible. As with timber, Scandinavian supplies of pulp are difficult to secure and, although there has been some increase in waste paper supplies, collection remains at a very inadequate level. Esparto is now coming forward more readily, but it is clear that home-produced paper will remain restricted to about its present level for some time.

Plastics.

The current boom in the manufacturing of all kinds of plastic goods has resulted in a shortage of many of the necessary basic materials—polyvinyl chloride, urea, phenol, wood-flour and others. Import licences are being freely granted, but manufacturers are having difficulty in finding supplies abroad. Meantime, voluntary control has been adopted to ensure equity in distribution.

Paint Materials.

Shortages of paint materials are widespread, with linseed oil the most serious. While the world oils and fats position remains difficult, overall supplies of linseed oil will remain much below requirements, and close control over use will continue to be necessary. Other bottlenecks are lithopone and titanium oxide, both of which it is hoped to secure in due course from Germany, though there is no immediate prospect of supplies from there; lead salts, which are restricted in consequence of the world shortage of the metal; and butyl alcohol and acetate for lacquers. On the credit side, the China wood oil position shows signs of becoming somewhat easier.

Glue and Gelatine.

The present position is poor, with home production suffering from a shortage of bones and gluestock; export of these from India and other supplying countries has recently been disappointing. Imports of the prepared materials are encouraged, but availabilities are limited.

Iron and Steel.

Reconversion has not so far been seriously affected by shortages, but the supplies in the next few months are certain to be very tight in view of the growing demand from consuming industries. Home production has been running at a very high level and is still rising. It had been expected that we should have been able to obtain substantial tonnages from the U.S.A. this year, but owing to strikes in both the steel and coal industries we cannot now get the deliveries we had expected. Supplies from the Continent, whence we used to import up to a million tons before the war, are not available in any large quantity. No relief can be expected until the U.S.A. or the Continent is in a position to export large quantities to us. The available supplies are allocated among Government Departments which authorise the consumers, for which they are responsible, to place orders with the steel firms. The allocations of steel for export have been drastically reduced from the rate permitted in the first half of the year. The great bulk of the exports is for necessary services overseas, such as railways, oil companies, etc., which it is essential to keep going in order that we may obtain necessary supplies of raw materials and foodstuffs.

The Hall Mark AYGEE *of Craftsmanship*

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Lead.

Lead will be in short supply for probably at least the next two years. Every effort is being made to substitute other materials —copper, aluminium, etc.—for purposes for which lead would normally be used, to increase imports and to make the best use of scrap lead which can be salvaged. Consumption in this country is controlled by a rationing scheme which has the effect, *inter alia*, of reducing exports of semi-manufactures in lead to almost negligible proportions. Exports of manufactured articles requiring lead, particularly cables, are permitted, but must be limited so long as the supply position makes it difficult to meet such basic reconstruction requirements at home as lead for housing, batteries and cables.

Other Metals.

The other principal metals which are in tight supply or may be in short supply in certain specifications are zinc and copper. In degree, however, they do not cause the supply difficulties which we meet on iron and steel and lead, and are not likely seriously to impede the reconstruction programme.

Rubber.

Rubber is more or less "easy," and should remain so.

BUILDING MATERIALS AND COMPONENTS

AMENDMENT OF FORM B.M.5

Referring to Circular 76/46 of April 10 and Circular 87/46 of April 26, the M.O.H. states that it has been decided to add the following building materials to the list of items covered by the Priority Distribution Scheme :—

All regions—Plate glass. Unit—S.F.
Regions other than London—Plasterboard. Unit—S.Y.

These items should accordingly be added to the materials listed in Form B.M.5 (Priority Certificate A) when priority certificates are applied for.

It is understood that local authorities have already been notified by Regional Licensing Officers of the changes made as from August 1 in the procedure for issuing certificates as set out in paragraph 14 of Ministry of Works leaflet C.L.A.3. Certificates to purchase plate glass as required by paragraph 14 and Appendix D of C.L.A.3 have been dispensed with entirely; and certificates to purchase asbestos, plasterboard and slates have been dispensed with in all regions except London. In the London region the procedure set out in C.L.A.3 for the issue of certificates as in Appendix D will, except for plate glass, continue to apply.

Daylight-Factor Protractors.

In the early part of the war a "daylight-factor" protractor was developed, primarily to enable determinations to be made of the amounts of daylight likely to be available in the new war-time factories, in which the maximum lighting efficiency had to be obtained from minimum areas of roof glazing. Subsequently, the scope of the method was extended, and other protractors were prepared to cover a wide range of glazing conditions.

A detailed description of the method is given in a technical paper, published in booklet form by the Department of Scientific and Industrial Research, entitled "Protractors for the Computation of Daylight Factors." The author is Mr. A. F. Dufton, M.A., D.I.C., and copies are obtainable from His Majesty's Stationery Office, price 4d. net.

RATES OF WAGES IN THE BUILDING TRADE

AS FROM BEGINNING OF PAY WEEK NEXT FOLLOWING 1st JANUARY, 1946.

(Every endeavour is made to ensure accuracy, but we cannot be responsible for errors)

	Crafts-men.	Lab-ourers.
Aberavon	2/6	2/0
Aberdare	2/6	2/0
Abergavenny	2/6	2/0
Abingdon	2/4½	1/11
Accrington	2/6	2/0
Aldeburgh	2/4	1/10½
Aldershot District	2/4½	1/11
Alfreton U.D.	2/6	2/0
Alnwick	2/5½	1/11½
Altrincham	2/6	2/0
Amble	2/5½	1/11½
Amersham	2/4½	1/11
Ammanford	2/6	2/0
Andover	2/4	1/10½
Ardingly	2/4	1/10½
Arundel	2/4	1/10½
Ascot	2/4	1/10½
Ashby-de-la-Zouch U.D.	2/6	2/0
Ashford (Kent)	2/4	1/10½
Ashford (Middlesex)	2/6	2/0
Ashington	2/5½	1/11½
Ashtead	2/6	2/0
Ashton-under-Lyne	2/6	2/0
Aylesbury	2/4	1/10½
Aylsham	2/4	1/10½
Bagshot	2/4	1/10½
Banbury	2/4	1/10½
Barnsley	2/6	2/0
Barnstaple	2/4	1/10½
Barrow-in-Furness	2/6	2/0
Barry	2/6	2/0
Basingstoke	2/4	1/10½
Bath	2/5½	1/11½
Batley	2/6	2/0
Beaconsfield	2/4½	1/11
Beccles	2/4	1/10½
Bedford	2/5½	1/11½
Berkhamstead	2/4	1/10½
Berwick District	2/5½	1/11½
Beverley	2/6	2/0
Bexhill-on-Sea	2/4½	1/11
Bideford	2/4	1/10½
Biggleswade	2/4	1/10½
Billericay	2/5	1/11½
Birchington	2/4	1/10½
Birkenhead	2/7½	2/1½
Birmingham C.B.	†2/6	†2/0
Bishop Auckland	2/6	2/0
Bishop's Stortford	2/5	1/11½
Blackburn	2/6	2/0
Blackpool	2/6	2/0
Blyth	2/6	2/0
Bognor Regis	2/4	1/10½
Bolton	2/6	2/0
Bournemouth District	2/5	1/11½
Bracknell	2/4	1/10½
Bradford	2/6	2/0
Bradford-on-Avon	2/4	1/10½
Braintree	2/4	1/10½
Brentwood	2/4	1/10½
Bridgwater	2/5½	1/11½
Bridlington	2/4½	1/11
Brighouse	2/5½	1/11½
Brighton	2/6	2/0
Bristol	2/5	1/11½
Broadstairs	2/6	2/0
Bromsgrove U.D.	2/4	1/10½
Buckley	2/5½	1/11½
Bungay	2/6	2/0
Burnham-on-Crouch	2/4	1/10½
Burnley	2/4	1/10½
Bursiem	2/6	2/0
Burton-on-Trent C.B.	2/6	2/0
Bury	2/6	2/0
Bury St. Edmunds	2/6	2/0
Buxton	2/4	1/10½
Byfleet	2/5½	1/11½
	2/4½	1/11
Cambridge	2/6	2/0
Canterbury	2/4	1/10½
Cardiff	2/6	2/0
Carlisle	2/6	2/0
Carnforth	2/6	2/0
Castleford	2/6	2/0
Caterham	2/6	2/0
Chard	2/4	1/10½
Chatham & District	2/5	1/11½
Chelmsford	2/5½	1/11½
Cheltenham	2/5	1/11½
Chepstow	2/5½	1/11½
Chertsey	2/5	1/11½
Chester	2/6	2/0
Chesterfield M.B.	2/6	2/0
Chichester	2/4	1/10½
Chorley	2/6	2/0
Cirencester	2/4	1/10½
Clacton	2/4	1/10½
Cleveleys	2/6	2/0
Clitheroe	2/6	2/0
Cobham (Surrey)	2/5	1/11½
Colchester	2/5½	1/11½
Colwyn Bay	2/5	1/11½
Congleton	2/5½	1/11½
Coventry C.B.	2/6	2/0
Cranbrook	2/4	1/10½
Cranleigh	2/4	1/10½
Crawley (Sussex)	2/4	1/10½
Crewe	2/5½	1/11½
Cromer	2/4	1/10½
Crowborough	2/4	1/10½
Cuckfield	2/4	1/10½
Darlington District	2/6	2/0
Darwen	2/6	2/0
Daventry M.B.	2/4½	1/11
Deal	2/4	1/10½
Denbigh Town	2/5	1/11½
Derby C.B.	2/6	2/0
Devizes	2/4	1/10½
Dewsbury	2/6	2/0
Didcot	2/4	1/10½
Diss	2/4	1/10½
Doncaster	2/6	2/0
Dorchester	2/4	1/10½
Dorking	2/4½	1/11
Dover	2/4	1/10½
Dovercourt	2/4	1/10½
Driffield	2/4½	1/11
Droitwich M.B.	2/5½	1/11½
Dudley M.B.	2/6	2/0
Dunstable	2/4½	1/11
Durham City	2/6	2/0
Eastbourne	2/5	1/11½
E. Glam. (Mon. Val.)	2/6	2/0
East Grinstead District	2/4	1/10½
Edenbridge	2/4	1/10½
Ely	2/4	1/10½
Epping	2/6	2/0
Exeter	2/5½	1/11½
Exmouth	2/4½	1/11
Fakenham	2/4	1/10½
Falmouth	2/4½	1/11
Fareham	2/5	1/11½
Faversham	2/4	1/10½
Felixstowe	2/5	1/11½
Filey	2/4½	1/11
Fleetwood	2/6	2/0
Flint	2/6	2/0
Folkestone	2/4	1/10½
Frinton	2/4	1/10½
Frome	2/5	1/11½
Gainsborough U.D.	2/5	1/11½
Gateshead	2/6	2/0
Gillingham (Kent)	2/5	1/11½
Glossop	2/6	2/0
Gloucester	2/5½	1/11½
Godalming	2/4	1/10½
Goole	2/6	2/0
Gosport	2/5½	1/11½
Grantham M.B.	2/5	1/11½
Gravesend	2/5½	1/11½
Great Yarmouth	2/4	1/10½
Grimsby	2/6	2/0
Guildford District	2/4	1/10½
Guilsborough	2/4½	1/11
Halifax	2/6	2/0
Hanley	2/6	2/0
Harpenden	2/5	1/11½
Harrogate	2/6	2/0
Hartlepools	2/6	2/0
Harwich	2/4	1/10½
Haslemere	2/4	1/10½
Hastings	2/4	1/10½
Hatfield	2/5½	1/11½
Haywards Heath	2/4	1/10½
Hednesford	2/5½	1/11½
Hemel Hempstead	2/5	1/11½
Henley-on-Thames	2/4	1/10½
Hereford	2/4	1/10½
Herne Bay	2/4	1/10½
Hertford	2/5½	1/11½
Heysham	2/6	2/0
Hitchin	2/5	1/11½
Hoddesdon	2/5½	1/11½
Holt (Norfolk)	2/4	1/10½
Horley	2/4	1/10½
Horsham	2/4	1/10½
Horwich	2/6	2/0
Huddersfield	2/6	2/0
Hull	2/6	2/0
Hunstanton	2/4	1/10½
Huntingdon	2/4	1/10½
Ilfracombe	2/4	1/10½
Ingatestone	2/4½	1/11
Ipswich	2/5½	1/11½
Isle of Thanet	2/4	1/10½
Isle of Wight	2/4	1/10½
Keighley	2/6	2/0
Kenilworth U.D.	2/6	2/0
Kettering M.B.	2/6	2/0
Kidderminster M.B.	2/5½	1/11½
King's Lynn	2/4	1/10½
Kirkham	2/6	2/0
Knowle	2/5½	1/11½
Lancaster	2/6	2/0
Leamington M.B.	2/6	2/0
Leatherhead	2/5	1/11½
Leeds	2/6	2/0
Leicester C.B.	2/6	2/0
Leighton Buzzard	2/4½	1/11
Letchworth	2/5	1/11½
Lewes	2/4	1/10½
Lichfield M.B.	2/5	1/11½
Lincoln C.B.	2/6	2/0
Littlehampton	2/4	1/10½
Liverpool	2/7½	2/1½
Llandudno	2/5	1/11½
Llanelly	2/6	2/0
London—		
12m. radius	2/7½	2/1½
12-15 m. radius	2/7	2/1
Long Eaton	2/6	2/0
Longton	2/6	2/0
Loughborough M.B.	2/6	2/0
Louth M.B.	2/4½	1/11
Lowestoft	2/4	1/10½
Luton	2/5½	1/11½
Macclesfield	2/5½	1/11½
Maidenhead	2/5	1/11½
Maidstone	2/4½	1/11
Malvern U.D.	2/4½	1/11
Manchester	2/6	2/0
Manningtree	2/4	1/10½
Mansfield M.B.	2/6	2/0
March	2/4	1/10½
Margate	2/4	1/10½
Market Harborough	2/5	1/11½
Matlock U.D.	2/4½	1/11
Melton Constable	2/4	1/10½
Melton Mowbray U.D.	2/5	1/11½
Merthyr	2/6	2/0
Middlesbrough	2/6	2/0
Middleton	2/6	2/0
Middlewich	2/5½	1/11½
Milford Haven	2/4½	1/11
Morecambe	2/6	2/0
Morley	2/6	2/0
Mundesley	2/4	1/10½
Nantwich	2/5½	1/11½
Nelson	2/6	2/0
Newark-on-Trent	2/5½	1/11½
Newbury	2/4	1/10½
Newcastle-on-Tyne	2/6	2/0
Newcastle-u.-Lyme	2/6	2/0
New Forest District	2/4	1/10½
Newmarket	2/4	1/10½
Newport, Mon.	2/6	2/0
Newport Pagnell	2/4	1/10½
Northampton C.B.	2/6	2/0
Norwich	2/6	2/0
Nottingham C.B.	2/6	2/0
Nuneaton M.B.	2/6	2/0
Oakham	2/4½	1/11
Oldham	2/6	2/0
Ormskirk	2/6	2/0
Oxford	2/5½	1/11½
Oxted	2/4½	1/11
Paignton	2/5½	1/11½
Peterborough (Borough)	2/5½	1/11½
Plymouth	2/6	2/0
Pontefract	2/6	2/0
Pontypridd District	2/6	2/0
Port Talbot	2/6	2/0
Portsmouth	2/5½	1/11½
Preston	2/6	2/0
Pulborough	2/4	1/10½
Ramsgate	2/4	1/10½
Reading	2/5½	1/11½
Redditch U.D.	2/5½	1/11½
Redhill	2/4½	1/11
Ripon	2/4½	1/11
Rochdale	2/6	2/0
Rochester	2/5	1/11½
Rugby M.B.	2/6	2/0
St. Albans	2/5½	1/11½
St. Helens	2/6	2/0
St. Neots	2/4	1/10½
Saffron Walden	2/4	1/10½
Salisbury City	2/4	1/10½
Salisbury Plain	2/4	1/10½
Sawbridgeworth	2/4½	1/11
Saxmundham	2/4	1/11½
Scarborough	2/5½	1/11½
Scunthorpe	2/6	2/0
Selby	2/6	2/0
Sevenoaks	2/4½	1/11
Sheerness	2/4	1/10½
Sheffield	2/6	2/0
Shipley	2/6	2/0
Shoeburyness	2/5½	1/11½
Shoreham	2/5	1/11½
Shrewsbury M.B.	2/5½	1/11½
Sittingbourne	2/4	1/10½
Skegness U.D.	2/5	1/11½
Sleaford U.D.	2/4½	1/11
Slough	2/5	1/11½
Smethwick C.B.	† 2/6	† 2/0
Southampton	2/5½	1/11½
Southend-on-Sea District	2/5½	1/11½
Southport	2/6	2/0
South Shields	2/6	2/0
Spalding U.D.	2/4	1/10½
Stafford M.B.	2/5½	1/11½
Staines	2/5	1/11½
Stamford	2/5	1/11½
Stevenage	2/5	1/11½
Stockport	2/6	2/0
Stockton-on-Tees	2/6	2/0
Stoke-on-Trent C.B.	2/6	2/0
Stourbridge M.B.	2/6	2/0
Stourport U.D.	2/5½	1/11½
Stowmarket	2/4	1/10½
Stratford-on-Avon M.B.	2/5	1/11½
Stroud	2/5	1/11½
Sunderland District	2/6	2/0
Sutton Coldfield M.B.	2/6	2/0
Swaffham	2/4	1/10½
Swanage	2/4	1/10½
Swansea	2/6	2/0
Swindon	2/4½	1/11
Tamworth M.B.	2/5½	1/11½
Taunton	2/4½	1/11
Tenterden	2/4	1/10½
Thames Haven	2/6	2/0
Thorpe Bay	2/4	1/10½
Todmorden	2/5½	1/11½
Tonbridge	2/6	2/0
Torquay	2/4½	1/11
Totnes	2/5½	1/11½
Trowbridge	2/4	1/10½
Truro	2/4	1/10½
Tunbridge Wells	2/4½	1/11
Uppingham (Salop)	2/5½	1/11½
Uttoxeter U.D.	2/4½	1/11
Wakefield	2/6	2/0
Walsall C.B.	2/6	2/0
Walsden	2/6	2/0
Walton-on-Naze	2/4	1/10½
Ware	2/5½	1/11½
Warminster	2/4	1/10½
Warrington	2/6	2/0
Warwick M.B.	2/6	2/0
Wellington R.D.	2/5½	1/11½
Welwyn	2/5	1/11½
Welwyn Gar. City	2/6	2/0
Wells (Norfolk)	2/4	1/10½
West Bromwich C.B.	2/6	2/0
Westcliff-on-Sea	2/5½	1/11½
Weston-Super-Mare	2/5	1/11½
Weybridge	2/5	1/11½
Weymouth	2/4	1/10½
Whitby	2/5	1/11½
Whitstable & District	2/4	1/10½
Widnes	2/6	2/0
Wigan	2/6	2/0
Wigton	2/4½	1/11
Willington	2/6	2/0
Wilmslow	2/6	2/0
Winchester	2/4½	1/11
Windermere	2/4½	1/11
Windsor	2/5	1/11½
Wisbech	2/4	1/10½
Witham	2/4	1/10½
Woking (District)	2/4½	1/11
Wokingham	2/4	1/10½
Wolverhampton C.B.	2/6	2/0
Woodbridge	2/4	1/10½
Worcester C.B.	2/5½	1/11½
Workington	2/4½	1/11
Worksop	2/5½	1/11½
Worthing	2/4	1/10½
Wrexham	2/5½	1/11½
Wroxham	2/4	1/10½
Wycombe	2/5	1/11½
Wymondham	2/4	1/10½
Yeovil	2/4½	1/11
York	2/6	2/0

† Plus 2d. per working day.

NOTE.—Carpenters, Joiners and Plumbers in all Towns and Districts receive 2d. per day Tool Allowances.

WOMEN'S RATES.—In all districts throughout the country the rate of wages for women engaged on craft processes is 1/7½ per hour. Women introduced to carry out work other than craft processes, 1/4 per hour.

NEWS ITEMS

Books on Building.

Clydebank Public Library has published a select list of books on building and allied trades.

£400,000 in Small Savings.

We are informed that the workmen and staff of John Laing and Son, Ltd., have just passed the figure of £400,000 as the amount contributed to National Savings.

Prices of Materials.

We are informed that the price of Cementone colours for cement has been amended. According to tints, prices per cwt. now range from £3 12s.

An Appointment.

Major John Baxter has been appointed Statistical Officer with the National Paint Federation. This is the first appointment to be made under the scheme for the reorganisation of the Federation's secretariat. Major Baxter takes up his new duties with the Federation on September 2.

Daylight Factors for Casement Windows.

A comprehensive study of daylight factors for standard casement windows has been published by the English Joinery Manufacturers' Association (Inc.), Sackville House, 40, Piccadilly, London, W.1. The booklet, which has been compiled by Frederick Macmanus, F.R.I.B.A., advisory architect to the Association, deals exhaustively with the better lighting of houses and other buildings and gives several useful diagrams, tables and contours. Architects and builders will find it to be an invaluable guide to adequate fenestration. The price is 2s.

British Coal Utilisation Research Association.

A notice appeared in our issue of July 26 to the effect that the above Association is now at Pebble Coombe, Surrey, and not at 13, Grosvenor-gardens, S.W.1. This is not entirely accurate. The position is that the head office remains at 13, Grosvenor-gardens, and the research and experimental work is carried on at the following three addresses: Experimental Station, Randalls-road, Leatherhead, Surrey; Manor House, Church-street, Leatherhead, Surrey; Pebble Coombe, Pebble Hill, near Tadworth, Surrey.

Soil Mechanics.

The four lectures given at the Institution of Civil Engineers on "The Principles and Application of Soil Mechanics" have now been issued in book form, price 6s., and copies can be obtained from the secretary at Great George-street, Westminster, S.W.1. They include lectures on "Development and Scope of Soil Mechanics," by L. F. Cooling, M.Sc.; "Earth Pressure and the Stability of Slopes," by A. W. Skempton, M.Sc. (Eng.), A.M.I.C.E.; "Soil Mechanics in Foundations and Excavation," by R. Glossop, B.Sc., A.M.I.C.E.; and "Roads and Airfields," by A. H. D. Markwick, M.Sc., M.I.C.E.

International Technical Congress.

The object of the International Technical Congress to be held in Paris from September 16 to 21 is to emphasise the important part which engineers, scientists and other technicians must take in the post-war era, and to stress the necessity of full collaboration between the engineers, technicians and scientists of all nations. In addition to the meetings and discussions on papers which are being presented, Congress members will have a choice of visits to central power stations, metallurgical, chemical, printing and railway works. Full details can be obtained from Robert Lowe, M.J.I.E., M.S.E., organising secretary, 82, Victoria-street, S.W.1. Phone, Victoria 6838, Ex. 12.

Maintenance of Boiler Instruments.

Fuel Efficiency Bulletin No. 45, published by the Ministry of Fuel and Power, is entitled "The Installation and Maintenance of Boiler House Instruments." It briefly describes the different forms of instruments and their functions and gives general advice on the positioning of sampling points, setting up of pipe lines and installation and siting of the meters. An important feature of the bulletin is that it contains much information that will be needed by those who use the Boiler House Log Sheets, shortly to be issued by the British Standards Institution.

Glossary of Building Trade Abbreviations.

A most useful booklet recently published is that compiled by John Croydon in the form of a glossary of building trade abbreviations. In view of the large number of building projects which are in hand and about to start in various parts of the country, the publication is a timely one, for there must be many who for the first time are coming into contact with the language of the building industry and allied trades. To these the booklet will be invaluable, but no less so to the experienced technician, for, as the author remarks, it is doubtful whether any one person can be familiar with all the abbreviations which are current to-day.

The care with which the compilation has been effected is shown by the sensible arrangement of the opening sections in trades, following the order of an average building specification. Another section gives the complete glossary in alphabetical order. Also given are symbols of various trades which are incapable of alphabetical placing. Altogether a handy and much needed booklet. The publishers are "The Ironmonger," 28, Essex-street, London, W.C.2.

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TRADE NEWS

Building Products for South-East Asia.

Messrs. Sheridan and Lee, builders and contractors, 33, Nunes-buildings, Malacca-street, Singapore, would like to receive catalogues and details of British Empire products for the building trade not already represented in South-East Asia.

Catalogues, etc., wanted.

Uni-Seco, Ltd., will be pleased to receive catalogues and information relating to building materials, methods, services, and equipment. All material should be addressed to the Technical Librarian and Information Officer, Uni-Seco, Ltd., 25, Upper Brook-street, Park-lane, London, W.1.

London Builder's Ruby Wedding.

Mr. H. W. Welsh, of Southall, for many years a member and now an honorary member of the London Master Builders' Association, celebrated his ruby wedding on July 9. Among the many congratulatory messages they received was a telegram from the King and Queen. Mr. Welsh has been connected with the building industry for 65 years, first as foreman and clerk of the works, then as master builder until his retirement.

THE SCOTTISH BUILDER

NEW BUILDINGS

Glasgow.—Garage and tyre vulcanising works, etc., for Clarkslow & Co. (Glasgow), Ltd., proposed at Davidson-st., for which the architects are Frank Burnet & Boston, 150, Hope-st., Glasgow.—Extensions proposed to factory for Hamilton, Marr & Co., Ltd., at Broomloan-rd., for which the architect is Robert Rennie, 104, Argyll-rd., Saltcoats.—Alterations and additions proposed at Lyndoch-cres., for Forrest & William Muirhead Moffet, Blythswood-st., for which the architect is John D. M. Thomson, 5, Westbank Quadrant, Glasgow.

Glasgow.—Additions and alterations proposed at the Drygate, for James Thomson & Son, for which the architect is James Austin Laird, 55, West Regent-st., Glasgow.—Plans prepared for alterations and additions at Cathedral-st., for William Collins, Sons & Co., Ltd., printers and publishers, for which the architects are Wylie, Shanks & Wylie, 204, West Regent-st., Glasgow.

Helensburgh.—T.C. agreed to erect 80 houses at Kirkmichael housing scheme No. 5.

Newarthill.—Housing scheme to be carried out by the Scottish Special Housing Association from plans by their own architects, at 11, Drumheugh-gdns., Edinburgh.

FUTURE CONSTRUCTION

CONTRACTS OPEN

For some contracts still open, but not included in this list, see previous issues. Those with an asterisk are advertised in this number. The dates at the heads of paragraphs are those for the submission of tenders; a dagger (†) denotes closing date for applications; the name and address at the end refer to the person from whom particulars may be obtained.

BUILDING

AUGUST 27.

Bilston T.C.—16 two-storey maisonettes at Wolverhampton-st. Boro' A. Dep. £2 2s.

AUGUST 28.

†***Berks and Bucks Joint Sanatorium, Peppard, Oxon.**—Works at Sanatorium (1) Kingwood: Maintenance and repair works and alterations to sanitary accommodation; (2) Centre House: Maintenance and repair works, various alterations at existing building and erection of structure for X-ray, etc.; (3) Kindercot: Maintenance and repair works and improvement scheme with alterations to South Block. E. R. Davies, Clerk to the Joint Committee, Shire Hall, Reading. Dep. £5 5s.

†***Kirkburton U.D.C.**—12 houses at Manorview. G. W. Smith, Joint Clerk. Dep. £2 2s Tenders by September 14.

AUGUST 29.

Hedon T.C.—15 pairs of houses at Hull-rd. Roper, Spencer and Hall, Architects, Suffolk-chbrs., Scale-la., Hull. Dep. £1 1s.

AUGUST 30.

Chapel-en-Frith.—5 pairs Airey houses at Castleton-rd., Hope. Building S.

†*Essex E.C.—Classroom hut at South-West Essex Technical College (approx. cost, £3,000). H. Conolly (F.), County A.

Eastbourne T.C.—1 pair of cottages at Chalk Farm, Willingdon. B.E. Dep. £2 2s.

Havant and Waterloo U.D.C.—Conversion of 16 huts into temporary dwellings at Southleigh Camp. E. Dep. £1 1s.

Hull T.C.—Rebuilding blocks II and B1, Newtown bldgs., Southcoates-la. City A. Dep. £1 1s.

AUGUST 31.

Hay U.D.C.—24 dwellings and road and sewer work. W. D. Morgan, Architect, Belle Vue, Hay. Dep. £5 5s.

SEPTEMBER 2.

Brighton E.C. — (1) Dining room and scullery at Balfour-rd. School; (2) dining room and kitchen at Whitehawk School; (3) two classrooms at Woodingdean School. B.E. and S. Dep. £3 3s.

Cheshire C.C.—Erection of prefabricated kitchen and dining room at Bromborough Woodslee school. E. M. Parkes (F.), County A. Dep. £2 2s.

†**Gipping R.D.C.**—36 houses at 2 sites. C. Dep. £3.

Horncastle U.D.C.—26 houses and roads and sewers at Mareham-rd. F. Weeber, M.Inst.M. & Cy.E., Registered Architect, Foundry-st., Horncastle. Dep. £2 2s.

Manchester T.C.—Provision and erection of steel-framed plant shed at Gt. Bridgewater-st., Highways Yard. City S. and E. Dep. £2 2s.

Tamworth R.D.C.—38 Airey houses at Wood End, Hurley. E. and S. Dep. £2 2s.

†*West Ham C.B.—Erection of Maternity Unit at Forest Gate Hospital, Contract No. 95. T. E. North, Boro' A. and Planning Officer, 100, West Ham-la., E.15. Dep. £2 2s. Tenders by September 12.

SEPTEMBER 3.

Bromsgrove R.D.C.—14 houses at Shaw-la., Stoke Prior. H. T. W. Gough, 45, Newhall-st., Birmingham 3. Dep. £2 2s.

†*East Ham C.B.—33 dwellings at Langdon estate (Contract No. 2) and 16 dwellings at 3 other sites (Contract No. 3). Office of Chief Housing Officer, Town Hall. Dep. £2 2s. Tenders by September 28.

Featherstone U.D.C.—68 houses and 18 bungalows at Purston estate. C. Dep. £2 2s.

Hucknall U.D.C.—16 houses with outbuildings, drains, etc., at Beauvale-rd. estate.

Isle of Wight R.D.C.—10 pairs of houses at 3 sites. Council Offices. Dep. £2 2s.

Nottingham T.C.—Alterations to Florence Nightingale Ward 2, at City Hospital. City E and S. Dep. £2.

Rochford R.D.C.—18 houses at The Drive, A. N. Box, S. Dep. £3.

Walsall C.B.—4 houses at Bloxwich-rd. B.E. and S. Dep. £3 3s.

SEPTEMBER 4.

Caterham and Warlingham U.D.C.—Alterations and additions to Pavilion at Valley Recreation and Sports Ground. E. and S.

Clacton U.D.C.—Alterations to Surveyor's Dept. at Town Hall. W. Aiston, A.M.Inst.C.E., E. and S.

†*Wandsworth B.C.—92 dwellings in blocks of 4 and 5 storeys at Notre Dame estate, Clapham T.C. Dep. £3 3s. Tenders by October 7.

SEPTEMBER 5.

Cleethorpes T.C.—100 houses, outbuildings, paths, drainage and fencing at Clee-rd., site No. 1B. Alan B. Cooper, A.M.Inst.C.E., B.E. Dep. £2 2s.

Ottery St. Mary U.D.C.—4 pairs of houses at Alfington. A. R. Lamb, Architect, Town Hall Dep. £3 3s.

Sherborne U.D.C.—26 houses. P. O. Clark (L.), Deputy S. Dep. £3 3s.

SEPTEMBER 6.

Bromley T.C.—E.D.6/4 brick-built transformer station at Lythet-rd. B.E.E. Dep. £1.

*Esher U.D.C.—40 houses and old people's bungalows at Golf Course estate, West Molesey.

Failsworth U.D.C.—146 houses at Propps Hall site. Harry S. Fairhurst and Son, 55, Brown-st., Manchester 2. Dep. £2 2s., payable to U.D.C.

*Gt. Yarmouth C.B.—65 houses at Magdalen College estate (Development No. 1), Gorleston. H. F. Dyson, M.B.E., M.Inst.M. & Cy.E., B.E.

Llandudno U.D.C.—24 houses and 12 flats at Herkomer-rd. and 3 pairs of houses at King's-ave. Ja. Edwards, B. Eng., A.M.Inst.C.E. Dep. £2 2s.

Skipton U.D.C.—20 houses at Horse Close site, Keighley-rd. S. Dep. £2 2s.

†**Wandsworth B.C.**—Two blocks of flats at Iron Mill-pl. C. Lovett Gill (F.), 41, Russell-sq., London, W.C.1. Dep. £3 3s. Tenders by Oct. 7.

†*West Ham C.B.—126 dwellings (3 storey flats) at Victoria Dock-rd., E.16. T. E. North, Boro' A. and Planning Officer, 100, West Ham-la., E.15. Dep. £2 2s.

†**West Sussex C.C.**—Erection of light steel-framed buildings at High School for Boys, Kingsham-rd., Chichester. F. R. Steele (F.), County A. Dep. £2 2s. Tenders by September 27

†**West Sussex C.C.**—House for caretaker at rear of County Hall, Chichester. F. R. Steele (F.), County A. Dep. £2 2s. Tenders by October 4.

SEPTEMBER 7.

Bootle C.B.—(a) Demolition of St. James' Select School, Seafield-rd.; (b) erection of 6 houses on the site. B.E. and S.

SEPTEMBER 9.

Bullingdon R.D.C.—26 "Airey" houses at 3 sites. S. Dep. £2 2s.

Friern Barnet U.D.C.—60 flats in 5 blocks at Alexandra-rd. E. and S. Dep. £2 2s.

*Portland U.D.C.—54 houses in 4 groups at Pound Piece, Weston, Portland. Crickmay and Sons, 23, St. Thomas-st., Weymouth. Dep. £2 2s.

†*St. Albans R.D.C.—22 houses at Hatfield-rd., Sandridge. C. Dep. £2 2s.

†*St. Albans R.D.C.—16 houses at Dyke-la., Wheathampstead. C. Dep. £2 2s.

†*St. Albans R.D.C.—17 houses at Lybury-la., Redbourn. C. Dep. £2 2s.

*St. Albans R.D.C.—20 houses at Sleapshyde-la., Smallford. C. Dep. £2 2s.

Spalding R.D.C.—37 pairs of Airey houses at 2 sites. F. Bernard Saunders, Architect, 10, The Crescent, Spalding, Lincs. Dep. £2 2s.

SEPTEMBER 10.

Aldershot T.C.—64 houses at Kingsway site. B.E. and S. Dep. £3 3s.

Bath T.C.—100 dwellings in 5 groups at Moorlands estate. City E. Dep. £2 2s.

*Berwick-on-Tweed T.C.—40 houses at Shielfield-terr., Tweedmouth. B.S. Dep. £3 3s.

Leeds E.C.—Erection and completion of prefabricated recreation hut at Shadwell Approved School. City A. Dep. £2 2s.

*Sutton Coldfield T.C.—16 houses at Tower-rd. estate. B.S. Dep. £2 2s

SEPTEMBER 11.

Littleborough.—78 houses at Hollingworth Lake site. G. F. Wild, E. and S. Dep. £2 2s.

SEPTEMBER 14.

†**Neston U.D.C.**—152 dwellings at Mellock-la., Little Neston. F. R. Poole, C. Dep. £5 5s.

SEPTEMBER 16.

Bexley T.C.—138 three-storey flats, electricity sub-station and office block, "John Newton Court," High-st., Welling. B.E. and S. Dep. £3 3s.

*Fareham U.D.C.—Rebuilding 30 and 32, Neville-ave., Portchester. E. and S. Dep. £2 2s.

Farnham U.D.C.—50 dwellings at Heath End site. G. Maxwell Aylwin (F.), 26, West-st., Farnham. Dep. £2 2s.

Ilkeston T.C.—133 houses at Cotmanhay estate. B.E. and S. Dep. £2 2s.

Kingsclere and Whitchurch R.D.C.—4 pairs of Airey houses at Headley. F. Henshaw (F.), Westminster Bank-chbrs., Andover. Dep. £2 2s.

Lowestoft T.C.—56 houses at No. 1 site, Yarmouth-rd. and Kirkley-gdns. B.E. Dep. £2 2s.

*Salford T.C.—Conversion of No. 2 and 4, George-st. into Remand Home. City E.

*Wokingham R.D.C.—16 houses and roads and sewer works at Tape-la. estate, Hurst. Chas. Smith and Son (F. and A.), 164, Friar-st., Reading. Dep. £2 2s.

SEPTEMBER 17.

*Aylesbury T.C.—46 houses at Southcourt. Raymond White (F.), Ceeley House, Church-st., Aylesbury. Dep. £5 5s.

*Bolton C.B.—Alterations at "Watermillock." Crompton-way. B.E. and S.

SEPTEMBER 19.

Andover T.C.—20 houses, south of Farrs-av. B.S. Dep. £2 2s.

*New Romney T.C.—50 houses. T.C. Dep. £2 2s.

SEPTEMBER 20.

Hemel Hempstead T.C.—98 houses at Anchor-la. site. Louis de Soissons, A.R.A. (F.), 21, St. John's Wood Park, London, N.W.8. Dep. £2 2s.

*Manchester T.C.—Conversion of Birchfields Tram Depot into bus garage. City A. Dep £1 1s.

SEPTEMBER 21.

Wilmslow U.D.C. — Conversion of college houses, Alderley-rd., into 8 flats. C.

SEPTEMBER 24.

*Fareham U.D.C.—64 houses at 3 sites. E and S. Dep. £2 2s.

NO DATE.

*Beaminster R.D.C.—10 houses at 3 sites. C. Dep. £2 2s.

PAINTING, ELECTRIC LIGHTING, MATERIALS, ETC.

SEPTEMBER 9.

L.C.C.—Repainting Albert Bridge. Chief E. Dep. £1.

ROADS, SEWERAGE AND WATER WORKS

AUGUST 28.

†*Warwick C.C.—Sewage disposal works at Weston Colony. County A. Dep. £2 2s.

AUGUST 30.

West Kesteven R.D.C.—Roads and sewers at Colsterworth. S. Dep. £2 2s.

SEPTEMBER 2.

Grimsby C.B.—Roads and sewers at Little Coates-rd. estate, site No. 4. B.E. and S. Dep. £2.

Halifax T.C.—Roads and sewers at Ovenden Plateau, section 2. B.E. Dep. £2 2s.

Kingsbridge R.D.C.—Roads and sewers at Modbury. E. Dep. £2 2s.

Penybont R.D.C.—Laying of sewers, etc., at Heollaethog. S. Dep. £2 2s.

Runcorn R.D.C.—Roads and sewers off Chester-rd., Helsby. E. Dep. £2 2s.

SEPTEMBER 3.

Wallasey C.B.—Roads and sewers. B.E. Dep. £3 3s.

Wetherby R.D.C.—270 lin. yds. stoneware sewers, Harewood. W. K. Rodwell, E. Dep. £1 1s.

SEPTEMBER 4.

Braintree R.D.C.—Roads and sewers at 2 sites. A. R. Dannatt and Son (L. and A.), 43, Duke-st., Chelmsford. Dep. £3 3s.

Maldon T.C.—1,100 lin. yds. of surface water sewer. B.S. Dep. £1 1s.

SEPTEMBER 5.

Cleethorpes T.C.—Roads and sewers at Clee-rd. site. B.E.

SEPTEMBER 6.

Oldham C.B.—Roads and sewers at Limeside estate. B.E. and S. Dep. £2 2s.

SEPTEMBER 9.

Bognor Regis U.D.C.—Roads and sewers at Waterworks Depot site. E. and S. Dep. £2 2s.

Hertford T.C.—Laying of approx. 546 yds. of 4-in. C.I. water main and 56 yds. of 9-in. stoneware sewer at Brickenden-la B.S. Dep. £2 2s.

Midhurst R.D.C.—Construction of pumping station and reinforced concrete reservoir and laying of approx. 14 miles of spun-iron pipes. John Taylor and Sons, Artillery House, Westminster, S.W.1. Dep. £5.

Prestwich T.C.—Construction of approx. 2,350 yds. of concrete pipe sewer at Clifton-rd. and Poppythorn-la. area. B.E. and S. Dep. £5 5s.

Salford T.C.—Reconstruction of Bolton-rd. sewer. City E.

SEPTEMBER 10.

Reading C.B.—Provision, laying and jointing of approx. 2,690 yds. of 12-in. spun-iron water main, etc. Water E. and Manager. Dep. £3 3s.

Towcester R.D.C.—Supply and laying of approx. 330 yds. of 18 in. and 12 in. dia. concrete sewer, etc. Pick, Everard, Keay and Gimson, 6, Millstone-la., Leicester. Dep. £1 1s.

SEPTEMBER 14.

*Leeds T.C.—Construction of roads at Low Farm (Contract No. 222) and Moortown estate (Contract No. 229). City A. Dep. £2 2s. each contract.

SEPTEMBER 16.

Saltash T.C.—Roads and sewers at Warfelton. B.E. Dep. £1 1s.

SEPTEMBER 23.

Camberwell B.C.—Construction of approx. 580 lin. yds. of 42 in. by 28 in. reinforced concrete sewer, etc., between Dog Kennel Hill and Green Dale. B.E. and S. Dep. £2 2s.

SEPTEMBER 24.

Kingston-upon-Hull T.C.—Construction of approx. 2,600 lin. yds. of brick and concrete sewer. Wm. Morris, City E. Dep. £10.

PUBLIC APPOINTMENTS

*Full details of Public Appointments marked * are advertised elsewhere in this issue. Those marked † have been advertised in previous issues.*

AUGUST 26.

***Barking T.C.**—Foreman.

AUGUST 31.

***Beds C.C.** — Chief Quantity Surveyor; Assistant Quantity Surveyor; Building Surveyor.
***Staffs E.C.**—Horticultural Draughtsman.
***Walthamstow T.C.**—(1) Two Architectural Assistants; (2) Two Planning Assistants.

SEPTEMBER 2.

†**Aireborough U.D.C.**—Housing Manager.
***Aldershot T.C.**—Assistant Highways and Works Superintendent.
†**Blackpool C.B.**—(1) Senior Architectural Assistant, Grade VIII; (2) Senior Architectural Assistant, Grade VI; (3) two Architectural Assistants; (4) two Junior Architectural Assistants; (5) Senior Engineering Assistant; (6) Senior Engineering Assistant for Heating and Ventilating; (7) two Engineering Assistants; (8) Senior Town Planning Assistant; two Senior Town Planning Assistants; (9) Senior Clerical Assistant.
†**Bootle C.C.**—(a) Assistant Architect; (b) Architectural Assistant; (c) Assistant Quantity Surveyor; (d) Assistant Building Inspector.
†**Dover T.C.**—Quantity Surveyor.
Herefordshire C.C.—(a) Two Assistant Architects, Grade VI; (b) Two Assistant Architects, Grade V; (c) Assistant Quantity Surveyor.
†**Kensington B.C.—Town Planning Assistant.**
†**Middlesbrough C.B.**—(a) Assistant Engineers; (b) Engineering Assistant; (c) Assistant Architects; (d) Quantity Surveyor; (e) Senior Building Inspector; (f) Chief Town Planning Assistant; (g) Town Planning Assistant.
†**Norwich T.C.**—Assistant Building Inspector.
†**Peterborough.**—Assistant Building Inspector.
†**Portsmouth T.C.**—Senior Planning Assistants (2).
†**Romford T.C.**—Building Works Superintendent.
†**Southampton C.B.**—(1) Senior Assistant Planning Officer; (2) two Assistant Planning Officers; (3) Planning Assistant; (4) Planning Assistant.
***Wembley T.C.**—(a) Chief Assistant; (b) Senior Technical Assistant (Quantity Surveyor); (c) 1st Class Assistant (Engineering); (d) 2nd Class Assistants (Engineering); (e) 2nd Class Assistant (Architectural); (f) Architectural Assistant.
***West Ham E.C.**—Instructor in Painting and Decorating.
***Wigan C.B.**—Assistant Building Inspector.

SEPTEMBER 3.

***Mansfield T.C.** — Second Architectural Assistant.
†**Sutton and Cheam T.C.** — Architectural Assistant.
†**York T.C.**—Senior Architectural Assistant; Senior Quantity Surveyor; Assistant Quantity Surveyor.

SEPTEMBER 4.

***Wolverhampton C.B.**—Senior Architectural Assistant (Class 1); Senior Architectural Assistant (Class 2).

SEPTEMBER 5.

***Kingston-upon-Hull E.C.**—Full-time Lecturer and Studio Instructor.

SEPTEMBER 6.

***Derbys C.B.**—(a) Chief Assistant Architect; (b) Chief Assistant Architect; (c) 2 Assistant Architects; (d) 5 Assistant Architects; (e) 5 Junior Architects; (f) Chief Quantity Surveyor; (g) Senior Quantity Surveyors; (h) Junior Quantity Surveyor; (i) Clerk of Works
***Dudley C.B.**—Architectural Assistants.
***Dudley C.B.**—Clerk of Works.
***Newcastle-under-Lyme T.C.** — (a) Two General Architectural Assistants; (b) Junior Architectural Assistant; (c) Clerk of Works; (d) Housing Maintenance Clerk.
***Newport C.B.**—Assistant Architect.
***Middlesbrough E.C.—Senior Architectural Assistant.**
***Southgate T.C.**—Architectural Assistants.
†**Wallasey C.B.**—(a) Chief Architectural Assistant; (b) Architectural Assistant.

SEPTEMBER 7.

†**Carmarthen Joint Counties Mental Hospital.**—Engineer and Clerk of Works.
†**Essex C.C.**—Full-time Lecturer in Architecture at South-East Essex Technical College and School of Art.
†**Lewisham B.C.**—Building Works Manager.
†**Lincoln T.C.** — (1) Architectural Assistant, Grade IV; (2) Architectural Assistant, Grade III.
†**North Middx. and South-East Herts Joint Planning Committee.**—Technical Assistant.
***Walsall C.B.**—Architectural Assistant.

SEPTEMBER 9.

***Chelmsford T.C.**—Building Inspector.
***Edmonton T.C.**—Architectural Assistant.
†**Hornsey T.C.**—Chief Architectural Assistant.
***Northampton C.B.**—Clerk of Works.
***Paddington B.C.** — Senior Architectural Assistant.
***Poole T.C.**—Junior Surveying Assistant (Temp.).
***Southport C.B.**—Architectural Assistant.
***University of Manchester.**—Two Temporary Lectureships; Two Temporary Assistant Lectureships.

SEPTEMBER 11.

***Esher U.D.C.**—(a) Chief Planning Assistant; (b) Junior Planning Assistant; (c) Quantity Surveyor; (d) Junior Architectural Assistant.

SEPTEMBER 12.

***Barking T.C.**—Clerk of Works (Temp.).
***Coventry T.C.**—Senior Quantity Surveyor.

SEPTEMBER 13.

***Canterbury C.B.**—(1) Architectural Assistant, Grade III; (2) Architectural Assistant, Grade I.

SEPTEMBER 14.

†**Ashton-under-Lyne T.C.** — Architectural Assistant.
***Dartford T.C.**—Clerk of Works.
***English Lakes Joint Planning Committee.**—Planning Officer.
†**Hackney B.C.**—Technical Assistants.
†**Herts C.C.**—3 Assistant Architects.
***Lambeth T.C.**—(a) Senior Assistant Engineer; (b) Assistant Engineer; (c) Junior Engineering Assistant.
***L.C.C.**—Full-time Teacher of Building at Brixton School of Building.

SEPTEMBER 16.

***Fulham T.C.**—Structural and Engineering Draughtsman; Mechanical Draughtsman; Electrical Draughtsman.
***Tottenham B.C.**—Planning Assistants.

SEPTEMBER 17.

***Northants C.C.**—Deputy County Architect.
***Northants C.C.**—(1) Engineering Assistant; (2) Architectural Assistant; (3) Architectural Assistant (Temp.).

SEPTEMBER 18.

***Southampton C.B.**—(1) Senior Building Inspector; (2) District Building Inspector; (3) Assistant District Building Inspector.

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SEPTEMBER 20.

***Leyton T.C.**—(1) Temporary Architectural Assistant; (2) Architectural Assistant; (3) General Architectural Assistant. (1) Town Planning Assistant; (2) Junior Town Planning Assistant (Temp.).

SEPTEMBER 21.

***Enfield U.D.C.**—(a) Senior Engineering Assistant; (b) Senior Architectural Assistant.

SEPTEMBER 27.

†**Portsmouth Electricity Service.**—Civil Engineering Assistant.
***Yeovil and District Joint Town Planning Committee.**—Town Planning Officer.

NO DATE.

***Crown Agents for the Colonies.**—Technical Instructor for Nigerian Govt.
***Edinburgh.**—Architectural Assistants for M.O.W.
***L.C.C.**—(1) Quantity Surveyors and Assistants (Senior and Junior); (2) Architects, Building Surveyors, Technical Assistants (Architectural) and Junior Drawing Office Assistants; (3) Heating Engineers and Heating and Ventilating Assistants.

GENERAL BUILDING WORK

(LONDON)

Caterham.—Houses.—T.C. are to erect 46 permanent prefabricated steel houses at Tillingdown-hill, Ninehams-rd. and Slines Oak-rd., at a cost of £57,740.

City.—Business Premises.—Noakes Bros., Ltd., process engravers, of Furnival-st. and Cursitor-st., have acquired a building in Norwich-st., Fetter-la., together with an adjoining site for the erection of a photo-engraving and typesetting plant. The architect is John Videan, 31, Holborn, W.C.1.

London.—Headquarters.—The Institute of Transport, 15, Savoy-st., W.C.2, are appealing for funds for a proposed central headquarters for use as a meeting place, library, etc.

Mount Pleasant.—Post Offices Premises.—A new sorting office and, possibly, a new City telephone exchange, are among the G.P.O.'s plans for post-war development.

Northolt.—Housing.—The Minister of Health has confirmed a request from Ealing Council to acquire, under a compulsory purchase order, the Northolt pony racing track on which it is intended to build a 1,000-house estate.

(PROVINCIAL)

Altrincham.—T.C. approved additions to works at Broadheath, for Budenberg Gauge Co., Ltd.—Syddall & Baines (Sale), Ltd., builders, Derbyshire-rd. South, Sale, propose houses at Victoria-av., Timperley.—Managers of St. Vincent's school propose Catholic school.

Bakewell.—Licensing Justices approved structural alterations at "Peacock" Hotel, Rowsley, for Haddon Estate Co.

Barnard Castle.—Barnard Castle and Teesside Farmers' Auction Mart propose cow byre with 72 stalls.

Birkenhead.—T.C. approved dry-cleaning factory for Merseyside Cleaners, Ltd.; Managers of St. Anne's R.C. school propose alterations to school buildings.

Birmingham.—T.C. propose construction of reinforced concrete reservoir at Elan Valley, nr. Rhayader, Radnorshire.

Blyth.—J. F. Fortune, 33, Hawthorn-ter., Durham City, to apply to Northumberland licensing authority for permission to construct greyhound track at South Newsham.

Bolton.—T.C. approved additions at Oakenbottom Mill, Oakenbottom-rd., for F. S. Shorrock.

Bradford.—E.C. propose school kitchen at Lordsfield-pl.

Consett.—U.D.C. propose 750 permanent prefabricated houses at various sites.

Eastbourne.—T.C. approved in principle scheme for sun lounge, café and bathing station at the Wish Tower, at £75,000.

Halesowen.—Midland Housing Corporation, Ltd., propose 100 houses at Hayley Green.—T.C. approved: Communal hall at Cocksheds-la., Hill and Cakemore, for A. & T. Underhill; factory at Hagley-rd., for Jollytoys, Ltd.

Hathersage.—Derbys E.C. propose secondary modern school.

Kidderminster.—E.C. propose four additional classrooms at Harry Cheshire Modern school, at £12,000.

Leek.—U.D.C. approved: 100 houses at Nursery-la., Stockton Brook, for A. P. Matthews, Highfield, Stockton Brook; extensions to Administrative Block at Smallpox Hospital, Bagnall, for North Staffordshire Joint Smallpox Hospital Board.

Manchester.—T.C. approved: 465 temporary houses, on sites at Bury Old-rd., junction with Sheepfoot-la. and junction of Middleton-rd. and Sheepfoot-la., Heaton Park, for Housing Committee; additions to works at Port-st., for William Allen (Machinery), Ltd.; works canteen and lavatories at St. Mary's-rd., Moston, for Moston Malleable Castings, Ltd.; extensions to

works at Owen-st. and City-rd., Hulme, for Cooke, Tweedale & Cooke, Ltd.; additions to works at Clayton-la., for Clayton, Walkden, Makin & Co., Ltd.

Middleton.—T.C. propose development 9½ acres of land at Clough-rd., for houses.

Newcastle-on-Tyne.—E.C. planning kitchens and dining-rooms at several schools.

Ormskirk.—Lancs C.C. propose alterations at County Hospital and Institution.

Ormskirk.—U.D.C. approved scheme for 284 houses, 10 shops, playing fields and school on north side of County-rd.

Preston.—R.D.C. propose 100 "Airey" houses for agricultural workers on various sites.

Rochdale.—T.C. propose construction of police station and residences at Norden, at £7,500; police station at Balderstone, at £6,800, and sub-section police stations, at £6,600.

Salford.—T.C. approved: Extensions to factory at Brighouse-st., for R. Robertson & Son, Ltd.; extensions to works at Broughton-la., Broughton, for Kays (Manchester), Ltd.

Sheffield.—E.C. propose two secondary modern schools at Parson Cross estate, at £218,000.

Stockport.—T.C. propose community centre at Adswood.

Sunderland.—Stephenson & Gills, 2, Saville-chbrs., Newcastle-on-Tyne, are architects for furniture factory at Roper-st., for J. Linskill.

Timperley.—Ches E.C. propose school at Mayfield-rd.

Wallasey.—E.C. propose extensions to schools at Barnston-la. and to Moreton R.C. school.

Wallsend.—Dining-room and kitchen to be erected at St. Columba school. Plans by M.O.W.

West Bromwich.—T.C. approved canteen to works at Hathershaw-la., Leamore, for Platt Malleable Castings, Ltd.

Wilmslow.—E. E. Coleman, Ltd., Builders, Waverley-rd. Works, Sale, Ches, propose houses at Pownall Park estate.

Yatton.—Caperns, Ltd., Bristol, propose factory and offices on a 7-acre site.

TENDERS

* Denotes *accepted*.
† Denotes *provisionally accepted*.
‡ Denotes *recommended for acceptance*.
§ Denotes *accepted subject to modification*.
¶ Denotes *accepted by H.M. Government departments*.

Adwick-le-Street.—34 houses, drainage, etc., for U.D.C. W. S. Ellis, S.: *C. F. Ward, High-st., Carcroft, Doncaster.

Ashton-under-Lyne.—40 houses at Nook-la. estate and 4 at Kenworthy-ave. site, for T.C. Architects, Drury & Gomersall, Imperial-bldgs., Oxford-st., Manchester: *J. Ridyard & Sons, Ltd., Railway Saw Mills, Ashton-under-Lyne, £52,543 (subject to M.H. approval).

Barnes.—12 flats at Beverley-rd., for T.C. B.E. & S.: ‡G. S. Smith & Partners, Ltd., 276, Streatham High-rd., S.W.16, £13,761.

Bishop Auckland.—Erection of further 36 houses at St. Helen's estate, for U.D.C. M. C. Robson, Station-chbrs., Bishop Auckland, architect: *Bell & Ridley, The Moorlands, Durham City.

Bolton.—60 houses at Breightmet Hall estate, for T.C. C. Herbert, B.E.: *Direct Labour Dept., £71,819.

Bury.—166 dwellings at Brandlesholme No. 2 site, for C.B. J. Chadwick, M.B.E., A.M.Inst.C.E., B.S. & E.: *Building Contractors, Bury, Ltd., 16, Bolton-st., Bury, Lancs.

Clevedon.—Six pairs of houses at West End. Inon J. Leach, E. & S.: *Stone & Co. (Bristol), Ltd., Redland-rd., Bristol.

Consett.—21 bungalows at Hamsterley colliery, for U.D.C.: *C. T. C. (Builders), Ltd., 2, Queen's-rd., Blackhill, Co. Durham.

Cranbrook (Kent).—Eight houses at Frittenden, for R.D.C. W. Lynn Thompson (A.), F.S.I., The Ingles, Hawkhurst: ‡Trenas, Ltd., High-st., Tenterden, £10,280.

Driffield.—32 houses at various sites, for R.D.C. Fred Vaux (F.), Danesmoor-chrs., 31, Quay-rd., Bridlington: *D. L. Naylor, 42, Middle-st. North, Driffield, E. Yorks, £43,269.

Dunston-on-Tyne.—Factory for the Northern Bedding Co., Blaydon: *Anglo-Scottish Construction Co., Gosforth, Newcastle.

East Ham.—10 dwellings, for C.B. Chief Housing Officer. Quantities by Richardson & Partners: *Taylor & Boswell, Suffolk-rd., Barking, £10,482.

Ellesmere.—30 houses at Oswestry-rd. site, for U.D.C. W. H. Davis, S.: *Thos. B. Gorst & Son, Ltd., Belmont Estate, Chester-rd., East Saltney, Chester, £37,093.

Felling (Co. Durham).—240 houses at High Lanes, for U.D.C. W. Lamb, Housing A.: *Direct labour (subject to M.H. approval).

Fleet.—Houses in connection with Aldershot-Albany-rds. scheme, for U.D.C.: *H. L. Eggleton, Ltd., Fleet, £65,403.

Gateshead.—72 concrete houses at Coach-rd., and 88 at Lobley Hill, for T.C. F. H. Patterson, B.E.: *G. Wimpey & Co., Ltd., Dunston-on-Tyne; 10 houses in flats at Saltwell-rd., for T.C.: *H. Durham, Durham-rd., Low Fell, Gateshead.

Gateshead.—Factory at North-East Trading Estate, for Bren Manufacturing Co.: *Anglo-Scottish Construction Co., Gosforth, Newcastle.

Glossop.—28 houses and eight aged persons' flats at Sheffield-rd., for T.C. G. Faulds, M.I.M. & Cy.E., B.S. and Registered Architect: *R. S. Aimscough, Ltd., The Sound, Delph, near Oldham.

Goole.—10 houses at Hook, for R.D.C. J. F. Chambers, architect, 87, Boothferry-rd., Goole: †Durham & Ramsey, Snaith, nr. Goole (subject to M.H. approval).

Hartlepool.—Two factories for North-Eastern Trading Estates, Ltd., Gateshead. Architects, Newrick & Blackbell, John-st., Sunderland: *Shepherd & Sons, York.

Hull.—108 houses, for T.C. A. Rankine (A.), City A., Guildhall. 44 at Salthouse-rd.: *Quibell & Son, Ltd., 14, Holderness-rd.; 42 at Priory-rd.: *Holmes & Hayter, Ltd., 198, Albert-av.; 22 at Belfield-av.: *Robinson & Sawdon, Ltd., 95, Alexander-rd. (all of Hull).

Jarrow.—Two factories for North-East Trading Association: *G. Henderson, Boldon-la., East Boldon, Durham.

King's Lynn.—78 houses at Gaywood Park estate, for T.C. J. R. Courtney, A.F.A.S., Housing A., Town Hall: *Jaques & Greeves, Ltd., Doncaster, £86,725.

L.C.C.—Contracts exceeding £2,500 in value placed by L.C.C. during period ended August 14: Reinstatement at 297-303 (odd), St. Helier-av., St. Helier estate, Merton and Morden, Intrade, Ltd., Oak House, Northbeach, Glos; reinstatement of 52-68 (even), Love-la., St. Helier estate, Merton and Morden, M. J. Gleeson, Ltd., Haredon House, London-rd., North Cheam, Surrey; erection of blocks 19-28, of dwellings, an estate office, superintendent's quarters, workshop, etc., and construction of children's playground, at Tulse Hill estate, Lambeth, W. J. Simms, Sons & Cooke, Ltd., 78, Mount-st., W.1.

Lleyn.—18 houses, for R.D.C. J. E. Taylor, S., Pwllheli. J. Egbert Griffiths (L.), architect, 1, Bank-pl., Portmadoc. 12 at Morfa and Morfa Nevin: *William Jones, Tudweiliog, Pwllheli; six at Llanystumdwy: *Sol. Owen, Fairholm, Pwllheli.

London (Air Ministry).—Contracts to value of £500 or over for week ended August 17:—Heating installation: G. N. Haden & Sons, Ltd., London, W.C.1. Dismantling and re-erecting hangars: George Pauling, Ltd., London, S.W.19. Re-roofing hangars: N. S. Bellman & Co., Ltd., London, E.C.2. Petrol installation: Rigg & Remington, Ltd., London, N.W.7. Painting work: A. Sharrocks, Ltd., Rochdale. General maintenance work: G. H. Miller & Co., Ltd., London, W.C.1.

¶London (M.O.W.).—Contracts placed by M.O.W. during week ended August 15:—*London*: Kew Gardens, Pumping Station building, pulling down and reconstruction, F. W. Hidden & Co., Ltd. (Building Contractors), 103, Boston Manor-rd., Brentford, Middx. Seaford House, 37, Belgrave-sq., London, repairs, Trollope & Colls, Ltd., 41/44, Great Queen-st., London, W.C.2. *Ayrshire*: Maybole, site works and foundations Aluminium houses, J. T. Grey, Ltd., 23, Kilmarnock-rd., Giffnock. *Dumbartonshire*: Tullichewan, site works and foundations Aluminium houses, A. A. Stuart & Sons, Ltd., 2230, London-rd., Glasgow. *East Lothian*: Tranent site works and foundations Aluminium houses, Baillie, Esq., 55, Market-st., Haddington. *Essex*: East Ham, Brampton school, temporary school building, W. J. Jerran, Ltd., Sandford-rd., East Ham, E.6. *Fifeshire*: Dunfermline, site works and Arcon houses, John Best (Edinburgh), Ltd., "The, Office," Edinburgh, 4. *Gloucester*: Bristol C.B., site works and foundations 117 Aluminium houses, W. E. Chivers & Sons, Ltd., Devizes, Wilts. Bristol, Rose Green school, central kitchen, dining-room and scullery, Stone & Co. (Bristol), Ltd., Redland-rd., Bristol, 6. *Hampshire*: Portsmouth, C.B.10, site works and Arcon houses, Howe & Bishop, Ltd., Clarendon-st., Portsmouth. *Herts*: Ashbridge Emergency Hospital, conversion, J. G. Gibbs & Son (Contractors), Ltd., 732, St. Albans-rd., Garston, Watford. *Kent*: Maidstone, Southborough boys' school, temporary school building, G. Parker & Sons, Ltd., 124, Sumner-rd., Peckham, S.E.15. *Lanarkshire*: Strathleven, Goodslum, site works and Tarran houses, McLean & Co., 73, Glasgow-rd., Wishaw. Tantallon-rd. housing site, retaining wall, T. H. McBurnie & Co., Ltd., 133, Mulngavie-rd., Bearsden, Glasgow. *Lancs*: Darwen M.B., site works and Tarran houses, W. J. Woof, Cranston & Sons, Pump-st., Blackburn. Bolton, White Bank school, temporary school building, W. Townson & Sons, Ltd., Park Hill-rd., Bolton. Crosby, Waterloo Modern school, temporary school building, Hampton, Sons & James, Marsh-st., Liverpool, 20. Salford, Hope Hall, temporary building, Tinker & Young, Ltd., Marshall-st., Manchester, 9. Openshaw C.E. school, South-st., temporary school building, Daniel Eadie & Co., Ltd., Short-st., Stockport. Bootle, Balliol-rd. boys' and girls' school, temporary school building, C. & G. E. Desoer, Ltd., 2/4, Marthon-st., Liverpool, 6. Southport, Preston New-rd. school, temporary school building, Humphreys, Ltd., Knightsbridge, S.W.7. Warrington, St. Benedict's R.C. school, temporary school building, J. R. Ashall, Ltd., Greenway, Manchester-rd., Paddington, Warrington. Wigan, C.B.1, Laithwaite House Farm, site works and foundations 106 Aluminium houses, A. Brett (Contractors), Ltd., Longridge-rd., Grimsargh, Preston. Hest Bank, erection and completion of unattended automatic telephone exchange, Nicholson & Wright, Cable-street, Lancaster. *Middx*: Twickenham, Kneller Hall school, temporary school building, G. T. Crouch, Ltd., 3/5, Thames-st., Kingston-on-Thames, Surrey. *Norfolk*: Main-st., Hanworth, P.O.W. camp, G. T. Crouch, Ltd., 3/5, Thames-st., Kingston-on-Thames, Surrey. *Staffs*: Twynnerton, Nelson Hall Hospital, conversion, C. Cornes & Sons, Lichfield-st. Works, Hanley, Stoke-on-Trent *Suffolk*: Hartismere R.D.C., Con. 1, site works and Tarran houses, W. Ames, Ltd., Dean Side, Great Yarmouth. *Surrey*: Twickenham, Kneller senior school, temporary school building, G. T. Crouch, Ltd., 3/5, Thames-st., Kingston-on-Thames. Beddington and Wallington, B.C.2, sites for 100 aluminium houses, Bradshaw Bros. (Contractors), Ltd., 235-41, Regent-st., London, W.1. County Secondary school, London-rd., Hackbridge, temporary school building, C. H. Coates, Ltd., Davis-rd., Tolworth, Surrey. *Sussex*: Hailsham R.D.C., Seco houses, Broad, Ltd., 76, Sackville-rd., Worthing. Portslade, Mile Oak school, temporary school building, Barnes and Llewelyn, Ltd., 100, North-st., Brighton. *West Lothian*: Bathgate, site works and foundations for Aluminium houses, Whatlings, Ltd., 41, St. Vincent-pl., Glasgow, C.11. *Wilts*: Holt, erection and completion of unattended automatic telephone exchange. H. Bullen & Sons, Ltd., Central-rd., Cromer. *Worcs*: Eversham U.D.C., site works and foundations Aluminium houses, Espley & Co., Ltd., 77, High-st., Eversham. Worcester, Barbone -rd. secondary school for girls, kitchen, Geo. Foster (Contractors), Ltd., Leamington-rd., Broadway, Worcs. *Yorks*: Hull, Cottingham-rd., Neweard high school, kitchen and dining-room, A. J. Darneley & Son, Ltd., 68, Spring-st., Hull. Hull, Chapman-st. school, temporary school building, A. J. Darneley & Son, Ltd., 68, Spring-st., Hull. Bilton, county primary school, temporary school building, A. J. Darneley & Son, Ltd., 68, Spring-st., Hull. Sheffield, Handsworth county school, temporary school building, R. S. Hutchinson, Ltd., 430, London-rd., Sheffield. Kingston high school, Pickering-rd., Hull, kitchen and dining-room, B. Pumphrey, Ltd., Wintern Works, Carlisle-st., Gainsborough. Huddersfield, Crossland Moor School, Blackmoorfool-rd., temporary school building, J. B. Brooke & Sons, Ltd., 264-74, Manchester-rd., Huddersfield. Yorks. Huddersfield, Woodhouse school, Chestnut-st., temporary school building, J. B. Brooke & Sons, Ltd., 264-74, Manchester-rd., Huddersfield, Yorks.

¶London (War Dept.).—Works contracts placed by War Dept., for week ended August 10:—

Ayrshire: Miscellaneous work, James Barclay, Kilmarnock. *Hampshire*: Miscellaneous work, W. H. Bryant & Son, Romney, Hampshire.

Ludlow.—56 houses, for T.C. S. N. Shrimpton & Son (L.), 9, Corve-st.: *J. McColville & Son, 31, Queen-st., Cardiff.

March.—10 houses at Wisbech-rd. site, for

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U.D.C.: *H. P. Kirby & Son, Peterborough, £11,690 (subject to M.H. approval).

Middleton.—Painting work on 224 houses, for T.C. J. Pollard (L.), B.E. & A. 174 at Moorclose estate. *James Ferguson & Co. (Decorators), Ltd., Gore-st., Salford 3, £1,218; 50 at West Green, Rhodes: *Hilton & Son, Manchester Old-rd., Middleton, £350.

Newcastle-on-Tyne.—38 houses at Acomb-gdns., Newcastle-on-Tyne: *U. & W. Cooknell, Coburg-st., Blyth.

Norwich.—Rebuilding St. Mary's Silk Mills, Oak-st. Architects, A. F. Scott & Sons, 23, Tombland, Norwich: *E. G. Carter, Ltd., Norwich.

Oldham.—School at Hollinwood, for E.C.: *R. Carlyle & Co., Ltd., Elsinore-rd., Old Trafford, Manchester 16.

Pickering.—20 houses at Back Westgate. Henry Smith, F.I.A.S., Burgate-chbrs., Pickering, architect: *A. Taylor & Sons, Westgate, Pickering. £23,496 (subject to M.H. approval).

Reading.—Houses, for T.C.:—260 "Easiform" houses: *John Laing & Son, Ltd., £340,196 50 "Orlit" houses *Reading United Builders, Ltd., £74,611; 2 "Clarincrete" houses: *Clarincrete, Ltd., £3,001 (subject to M.H. approval).

Redcar.—Factories at Wilton estate, for Imperial Chemical Industries, Ltd. Building work: *J. B. Edwards & Co., Ltd., West Coatham-la., Dormanstown, Redcar.

Rochdale.—24 houses at Kirkholt estate, for T.C.: *C. Bradley, 45, King-rd., Rochdale.

Skipton.—30 houses at Horse Close estate, for U.D.C. K. B. Robinson, S.: *W. & J. Glossop, Ltd., Amisfield House, Hipperholme, Halifax, Yorks. £38,354.

Stockport.—12 houses at Offerton site, for T.C. F. W. Gardner, B.S.: †E. Williams.

Sunderland.—Garage for Hepplewhite & Shaw, Ltd. Architects, Newrick & Blackbell, John-st., Sunderland: *Gordon Durham & Co., Ltd., Moor-la., East Boldon, Co. Durham.—Eight houses at Seaburn Hill: *G. Porteous, Ltd., West Sunniside, Sunderland.

Swinton and Pendlebury.—16 houses at Beechfield estate, for T.C. J. C. Prestwich & Sons, M.A. (F.), Bradshawgate-chbrs., Leigh, Lancs: ‡Andertons, Beech House, Stanifield-la., Farington, Preston, £19,673.

Tipton.—98 houses at Denbigh estate, Horseley Heath, for T.C. H. N. Woodard, M.I.M. & Cy.E., E. & S.: *Austin & Co., Walsall-rd., Aldridge, Staffs.

West Bromwich.—Electricity showrooms and offices, High-st., for T.C. J. G. Jefferson, B.E.: *Edgar Crowder, Ltd., South-rd., Birmingham 19. £14,333.

Wirksworth.—30 houses at Derby-rd. site, for U.D.C. J. Taylor, S.: *A. Lee, Whatstandwell, Matlock.

Worcester.—40 houses at Newtown-rd. estate, for T.C. H. A. Mackrill, City S.: *G. Thomas, Morris-av., Worcester.

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